













# THE IMPERIAL ENCYCLOPEDIA AND DICTIONARY

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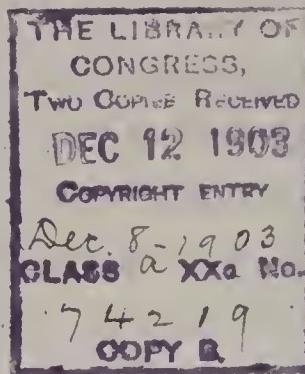
IN FORTY VOLUMES

VOLUME 33  
RUTA—SECRETARIES

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## SCHEME OF SOUND SYMBOLS FOR THE PRONUNCIATION OF WORDS.

*Note.—(-) is the mark dividing words respelt phonetically into syllables: ('), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.*

Sound-symbols employed in Respelling. Representing the Sounds as exemplified in the Words. Words respelt with Sound-symbols and Marks for Pronunciation.

ā...	mate, fate, fail, aye.....	māt, fāt, fāl, ā.
ā...	mat, fat.....	māt, fāt.
ā...	far, calm, father .....	fār, kām, fā'thēr.
ā...	care, fair .....	cār, fār.
aw...	fall, laud, law .....	fawl, lawd, law.
ē...	mete, meat, feet, free .....	mēt, mēt, fēt, frē.
ē...	met, bed.....	mēt, bēd.
ē...	her, stir, heard, cur .....	hēr, stēr, hērd, kēr.
ī...	pine, ply, height .....	pīn, plī, hīt.
ī...	pin, nymph, ability.....	pīn, nīmf, ī-būl'i-tī.
ō...	note, toll, soul.....	nōt, tōl, sōl.
ō...	not, plot.....	nōt, plōt.
ō...	move, smooth.....	mōv, smōth.
ō...	Goethe (similar to e in her)....	gō'teh.
ow...	noun, bough, cow.....	nōwn, bow, kow.
oy...	boy, boil.....	boy, boyl.
ū...	pure, dew, few.....	pūr, dū, fū.
ū...	bul, come, tough.....	būd, kūm, tūf.
ū...	full, push, good.....	fūl, pūsh, gūd.
ü...	French plume, Scotch guid.	plüm, güd.

ch...	chair, match.....	chär, mäch.
ch...	German buch, Heidelberg, Scotch loch (guttural).....	bōch, hī'dēl-bērçh, lōch.
g...	game, go, gun.....	gäm, gō, gän.
j...	judge, gem, gin.....	jūj, jēm, jīn.
k...	king, cat, cot, cut.....	kīng, kāt, kōt, küt.
s...	sit, scene, cell, city, cypress.....	sīt, sēn, sēl, sīt'i, sī'prēs.
sh...	shun, ambition .....	shün, äm-bish'ün.
th...	thing, breath .....	thīng, brēth.
th...	though, breathe.....	thō, brēth.
z...	zeal, maze, muse.....	zēl, māz, müz.
zh...	azure, vision.....	äzh'er, vïzh'ün.



## ABBREVIATIONS USED IN THIS WORK.

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a., or adj. .adjective	
A.B. .... Bachelor of Arts	
abbr. .... abbreviation, abbreviated	
abl. or abla. ablative	
Abp. .... Archbishop	
abt. .... about	
Acad. .... Academy	
acc. or ac. accusative	
accom. .... accommodated, accommodation	
act. .... active	
A.D. .... in the year of our Lord [ <i>Anno Domini</i> ]	
Adjt. .... Adjutant	
Adm. .... Admiral	
adv. or ad. adverb	
A. F. .... Anglo-French	
Ag. .... Silver [ <i>Argentum</i> ]	
agri. .... agriculture	
A. L. .... Anglo-Latin	
Al. .... Aluminium	
Ala. .... Alabama	
Alb. .... Albanian	
alg. .... algebra	
A.M. .... before noon [ <i>ante meridiem</i> ]	
A.M. .... Master of Arts	
Am. .... Amos	
Amer. .... America, -n	
anat. .... anatomy, anatomical	
anc. .... ancient, anciently	
AN. M. .... in the year of the world [ <i>Anno Mundii</i> ]	
anon. .... anonymous	
antiq. .... antiquity, antiquities	
aor. .... aorist, -ic	
app. .... appendix	
appar. .... apparently	
Apr. .... April	
Ar. .... Arabic	
arch. .... architecture	
archæol. .... archæology	
arith. .... arithmetic	
Ark. .... Arkansas	
art. .... article	
artil. .... artillery	
AS. .... Anglo-Saxon	
As. .... Arsenic	
Assoc. .... Association	
asst. .... assistant	
astrol. .... astrology	
astron. .... astronomy	
attrib. .... attributive	
atty. .... attorney	
at. wt. .... atomic weight	
Au. .... Gold [ <i>Aurum</i> ]	
A.U.C. .... in the year of the building of the city (Rome) [ <i>Annourbis conditæ</i> ]	
Aug. .... August	
aug. .... augmentative	
Aust. .... Austrian	
A. V. .... authorized version [of Bible, 1611]	
avoir. .... avoirduois	
B. .... Boron	
B. .... Britannic	
b. .... born	
Ba. .... Barium	
Bart. .... Baronet	
Bav. .... Bavarian	
bl.; bbl. .... barrel; barrels	
B.C. .... before Christ	
B.C.L. .... Bachelor of Civil Law	
B.D. .... Bachelor of Divinity	
bef. .... before	
Belg. .... Belgic	
Beng. .... Bengali	
Bi. .... Bismuth	
biog. .... biography, biographical	
biol. .... biology	
B.L. .... Bachelor of Laws	
Bohem. .... Bohemian	
bot. .... botany, botanical	
Bp. .... Bishop	
Br. .... Bromine	
Braz. .... Brazilian	
Bret. .... Breton	
Brig. .... Brigadier	
Brit. .... British, Britannica	
bro. .... brother	
Bulg. .... Bulgarian	
bush. .... bushel, bushels	
C. .... Carbon	
c. .... century	
Ca. .... Calcium	
Cal. .... California	
Camb. .... Cambridge	
Can. .... Canada	
Cant. .... Canterbury	
cap. .... capital	
Capt. .... Captain	
Card. .... Cardinal	
carp. .... carpentry	
Cath. .... Catholic	
caus. .... causative	
cav. .... cavalry	
Cd. .... Cadmium	
Ce. .... Cerium	
Celt. .... Celtic	
cent. .... central	
cf. .... compare [ <i>confer</i> ]	
ch or chh. .... church	

## ABBREVIATIONS.

Chal.....	Chaldee	diff.....	different, difference
chap.....	chapter	dim.....	diminutive
chem.....	chemistry, chemical	dist....	district
Chiu.....	Chinese	distrib....	distributive
Chron.....	Chronicles	div.....	division
chron.....	chronology	doz.....	dozen
Cl.....	Chlorine	Dr.....	Doctor
Class.....	Classical [= Greek and Latin]	dr.....	dram, drams
Co.....	Cobalt	dram.....	dramatic
Co.....	Company	Dut. or D...	Dutch
co.....	county	dwt.....	pennyweight
cog.....	cognate [with]	dynam.....	or
Col.....	Colonel	dyn.....	dynamics
Col.....	Colossians	E.....	Erbium
Coll.....	College	E. or e.....	East, -ern, -ward
colloq.....	colloquial	E. or Eng.....	English
Colo.....	Colorado	Eccl.....	Ecclesiastes
Com.....	Commodore	eccl. or { ecclesiastical [af- eccles.... { fairs]	
com.....	commerce, commer- cial	ed.....	edited, edition, editor
com.....	common	e.g.....	for example [ <i>ex gratia</i> ]
comp.....	compare	E. Ind. or { East Indies, East E. I. .... { Indian	
comp.....	composition, com- pound	elect.....	electricity
compar.....	comparative	Emp.....	Emperor
conch.....	conchology	Encyc.....	Encyclopedia
cong.....	congress	Eng. or E. .... { English	
Cougl.....	Congregational	engin.....	engineering
conj.....	conjunction	entom.....	entomology
Conn or Ct.	Connecticut	env. ext.....	envoy extraordinary
contr.....	contraction, contracted	ep.....	epistle
Cop.....	Coptic	Eph.....	Ephesians
Cor.....	Corinthians	Episc.....	Episcopal
Corn.....	Cornish	eq. or =....	equal, equals
corr.....	corresponding	equiv.....	equivalent
Cr.....	Chromium	esp.....	especially
crystal.....	crystallography	Est.....	Esther
Cs.....	Cæsium	estab.....	established
ct.....	cent	Esthon.....	Estonian
Ct. or Conn.	Conneeticut	etc.....	and others like [ <i>et cetera</i> ]
Cu.....	Copper [ <i>Cuprum</i> ]	Eth.....	Ethiopic
cwt.....	a hundred weight	ethnog.....	ethnography
Cyc.....	Cyclopedia	ethnol.....	ethnology
D.....	Didymium	et seq.....	and the following [ <i>et sequentia</i> ]
D. or Dut.....	Dutch	etym.....	etymology
d.....	died	Eur.....	European
d. [l. s. d.].....	penny, pence	Ex.....	Exodus
Dan.....	Daniel	exclam.....	exclamation
Dan.....	Danish	Ezek.....	Ezekiel
dat.....	dative	Ezr.....	Ezra
dau.....	daughter	F.....	Fluorine
D. C.....	District of Columbia	F. or Fahr.....	Fahrenheit
D.C.L.....	Doctor of Civil [or Common] Law	f. or fem.....	feminine
D.D.....	Doctor of Divinity	F. or Fr.....	French
Dec.....	December	fa.....	father
dec.....	declension	Fahr. or F. ....	Fahrenheit
def.....	definite, definition	far.....	farriery
deg.....	degree, degrees	Fe.....	Iron [ <i>Ferrum</i> ]
Del.....	Delaware	Feb.....	February
del.....	delegate, delegates	fem or f. ....	feminine
dem.....	democratic	fig.....	figure, figuratively
dep.....	deputy	Fin.....	Finnish
dep.....	deponent	F.—L.....	French from Latin
dept.....	department	Fla.....	Florida
deriv.....	derivation, deriv- ative	Flem.....	Flemish
Deut.....	Deuteronomy	for.....	foreign
dial.....	dialect, dialectal	fort.....	fortification
diam.....	diameter	Fr. or F. ....	French
Dic.....	Dictionary	fr.....	from

## ABBREVIATIONS.

freq.....	frequentative
Fris.....	Frisian
ft.....	foot, feet
fut.....	future
G. or Ger...	German
G.....	Glucinium
Ga.....	Gallium
Ga.....	Georgia
Gael.....	Gaelic
Gal.....	Galatians
gal.....	gallon
galv.....	galvanism, galvanic
gard.....	gardening
gen.....	gender
Gen.....	General
Gen.....	Genesis
gen.....	genitive
Geno.....	Genoese
geog.....	geography
geol.....	geology
geom.....	geometry
Ger.....	German, Germany
Goth.....	Gothic
Gov.....	Governor
govt.....	government
Gr.....	Grand, Great
Gr.....	Greek
gr.....	grain, grains
gram.....	grammar
Gr. Brit....	Great Britain
Gris.....	Grisons
gun.....	gunnery
H.....	Hegira
H.....	Hydrogen
h.....	hour, hours
Hab.....	Habakkuk
Hag.....	Haggai
H. B. M....	His [or Her] Britannic Majesty
Heb.....	Hebrew, Hebrews
her.....	heraldry
herpet.....	herpetology
Hg.....	Mercury [ <i>Hydrargyrum</i> ]
hhd.....	hogshead, hogsheads
Hind.....	Hindustani, Hindu, or Hindi
hist.....	history, historical
Hon.....	Honorable
hort.....	horticulture
Hos.....	Hosea
Hung.....	Hungarian
Hydros.....	Hydrostatics
I.....	Iodine
I.; Is.....	Island ; Islands
Icel.....	Icelandic
ichth.....	ichthyology
Ida.....	Idaho
i.e.....	that is [ <i>id est</i> ]
Ill.....	Illinois
illus.....	illustration
impera or	
impr.....	imperative
impers.....	impersonal
impf or imp.	imperfect
impf. p. or	
imp.....	imperfect participle
improp.....	improperly
In.....	Indium
in.....	inch, inches
incept.....	inceptive
Ind.....	India, Indian
Ind.....	Indiana
ind.....	indicative
indef.....	indefinite
Indo-Eur...	Indo-European
inf.....	infantry
inf or infin.	infinitive
instr.....	instrument, -al
int.....	interest
intens.....	intensive
interj. or	
int.....	interjection
interrog.....	interrogative noun
intr. or	
intrans...	intransitive
Io.....	Iowa
Ir.....	Iridium
Ir.....	Irish
Iran.....	Iranian
irr.....	irregular, -ly
Is.....	Isaiah
It.....	Italian
Jan.....	January
Jap.....	Japanese
Jas.....	James
Jer.....	Jeremiah
Jn.....	John
Josh.....	Joshua
Jr.....	Junior
Judg.....	Judges
K.....	Potassium [ <i>Kalium</i> ]
K.....	Kings [in Bible]
K.....	king
Kan.....	Kansas
Kt.....	Knight
Ky.....	Kentucky
L.....	Latin
L.....	Lithium
l. [l. s. d.],	{ pound, pounds
or £.....	} [sterling]
La.....	Lanthanum
La.....	Louisiana
Lam.....	Lamentations
Lang.....	Languedoc
lang.....	language
Lap.....	Lapland
lat.....	latitude
lb.; llb. or {	pound ; pounds
lbs.....	} [weight]
Let.....	Lettish
Lev.....	Leviticus
LG.....	Low German
L.H.D.....	Doctor of Polite Literature
Lieut.....	Lieutenant
Lim.....	Limousin
Lin.....	Linnæus, Linnæan
lit.....	literal, -ly
lit.....	literature
Lith.....	Lithuanian
lithog.....	lithograph, -y
LL.....	Late Latin, Low Latin
LL.D.....	Doctor of Laws
long.....	longitude
Luth.....	Lutheran
M.....	Middle
M.....	Monsieur
m.....	mile, miles
m. or masc.	masculine
M.A.....	Master of Arts
Macc.....	Maccabees
mach...	machinery
Mag.....	Magazine

## ABBREVIATIONS.

Maj.....	Major	N. A., or	N. Amer.
Mal.....	Malachi	North America, -n	
Mal.....	Malay, Malayan	nat.....natural	
manuf.....	Manufacturing, manufacturers	naut.....nautical	
Mar.....	March	nav.....navigation, naval af- fairs	
masc or m.	masculine	Nb.....Niobium	
Mass.....	Massachusetts	N. C. or	
math.....	mathematics, math- ematical	N. Car.	North Carolina
Matt.....	Matthew	N. D.	North Dakota
M.D.....	Doctor of Medicine	Neb.....Nebraska	
MD.....	Middle Dutch	neg.....negative	
Md.....	Maryland	Neh.....Nehemiah	
ME.....	Middle English, or Old English	N. Eng.	New England
Me.....	Maine	neut or n....neuter	
mech.....	mechanics, mechani- cal	Nev.....Nevada	
med.....	medicine, medical	N. Gr.....New Greek, Modern Greek	
mem.....	member	N. H.....New Hampshire	
mensur....	mensuration	NHG.....New High German [German]	
Messrs. or		Ni.....Nickel	
MM.....	Gentlemen, Sirs	N. J.....New Jersey	
metal.....	metallurgy	NL.....New Latin, Modern Latin	
metaph....	metaphysics, meta- physical	N. Mex.....New Mexico	
meteor....	meteorology	N. T. or	
Meth.....	Methodist	N. Test....New Testament	
Mex.....	Mexican	N. Y.....New York [State]	
Mg.....	Magnesium	nom.....nominative	
M. Gr.....	Middle Greek	Norm. F....Norman French	
MHG.....	Middle High German	North. E....Northern English	
Mic.....	Micah	Norw....Norwegian, Norse	
Mich.....	Michigan	Nov.....November	
mid.....	middle [voice]	Num.....Numbers	
Milan.....	Milanese	numis.....numismatics	
mid. L. or { Middle Latin, Me- ML.....{ diæval Latin		O.....Ohio	
milit. or		O.....Old	
mil....	military [affairs]	O.....Oxygen	
min.....	minute, minutes	Obad.....Obadiah	
mineral....	mineralogy	obj.....objective	
Minn.....	Minnesota	obs. or †....obsolete	
Min. Plen..	Minister Plenipoten- tiary	obsoles....obsolescent	
Miss.....	Mississippi	O. Bulg....Old Bulgarian or Old Slavic	
ML. or { Middle Latin, Me- mid. L...{ diæval Latin		Oct.....October	
MLG.....	Middle Low German.	Odontog....odontography	
Mlle.....	Mademoiselle	OE.....Old English	
Mme.....	Madam	OF or	
Mn.....	Manganese	O. Fr....Old French	
Mo.....	Missouri	OHG.....Old High German	
Mo.....	Molybdenum	Ont.....Ontario	
mod.....	modern	opt.....optics, optical	
Mont.....	Montana	Or.....Oregon	
Mr.....	Master [Mister]	ord.....order	
Mrs.....	Mistress [Missis]	ord.....ordnance	
MS.; MSS..	manuscript; manu- scripts	org.....organic	
Mt.....	Mount, mountain	orig.....original, -ly	
mus.....	music	ornith.....ornithology	
MUS. DOC....	Doctor of Music	Os.....Osmium	
myth.....	mythology, mytho- logical	OS. ....Old Saxon	
N.....	Nitrogen	O. T., or	
N. or n....	North, -ern, -ward	O. Test....Old Testament	
n.....	noun	Oxf.....Oxford	
n or neut...	neuter	oz.....ounce, ounces	
Na.....	Sodium [Natrium]	P.....Phosphorus	
Nah.....	Nahum	p.; pp.....page; pages	
		p., or part..participle	
		Pa. or Penn.Pennsylvania	
		paint.....painting	
		palæon....palæontology	
		parl.....parliament	
		pass.....passive	

# ABBREVIATIONS.

pathol or		
path	pathology	
Pb	Lead [ <i>Plumbum</i> ]	
Pd	Palladium	
Penn or Pa.	Pennsylvania	
perf	perfect	
perh	perhaps	
Pers	Persian, Persic	
pers	person	
persp	perspective	
pert	pertaining [to]	
Pet	Peter	
Pg. or Port.	Portuguese	
phar	pharmacy	
PH.D	Doctor of Philosophy	
Phen	Phenician	
Phil	Philippians	
Philem	Philemon	
philol	philology, philological	
philos.	{ philosophy, philosophy, sophical	
phonog	phonography	
photog	photography	
phren	phrenology	
phys	physics, physical	
physiol	physiology, physiological	
Pied	Piedmontese	
Pl	Plate	
pl. or plu	plural	
Pl. D.	Platt Deutsch	
plupf	pluperfect	
P.M.	afternoon [ <i>post meridiem</i> ]	
pneum	pneumatics	
P. O.	Post-office	
poet	poetical	
Pol	Polish	
pol. econ	political economy	
polit	politics, political	
pop	population	
Port. or Pg.	Portuguese	
poss	possessive	
pp	pages	
pp.	past participle, perfect participle	
p. pr.	present participle	
Pr. or Prov.	Provengal	
pref	prefix	
prep	preposition	
Pres	President	
pres	present	
Presb	Presbyterian	
pret	preterit	
prim	primitive	
priv	privative	
prob	probably, probable	
Prof	Professor	
pron	pronoun	
pron	pronunciation, pronounced	
prop	properly	
pros	prosody	
Prot	Protestant	
Prov. or Pr.	Provengal	
Prov.	Proverbs	
prov	province, provincial	
Prov. Eng.	Provincial English	
Prus	Prussia, -n	
Ps.	Psalm, Psalms	
psychol	psychology	
pt	past tense	
pt	pint	
Pt	Platinum	
pub	published, publisher, publication	
pwt	pennyweight	
Q	Quebec	
qt	quart	
qtr	quarter [weight]	
qu	query	
q.v.	which see [ <i>quod vide</i> ]	
R	Rhodium	
R	River	
Rb	Rubidium	
R. Cath.	Roman Catholic	
rec. sec	recording secretary	
Ref.	Reformed	
refl	reflex	
reg	regular, -ly	
regt	regiment	
rel. pro. or		
ref	relative pronoun	
repr	representing	
repub	republican	
Rev	Revelation	
Rev.	The Reverend	
Rev. V.	Revised Version	
rhet	rhetoric, -al	
R. I.	Rhode Island	
R. N.	Royal Navy	
Rom	Roman, Romans	
Rom.	Romanic or Romance	
Rom. Cath.	Roman Catholic	
Ch. or R.	Church	
C. Ch.		
r.r.	railroad	
Rt. Rev.	Right Reverend	
Ru	Ruthenium	
Russ	Russian	
r.w.	railway	
S.	Saxon	
S.	Sulphur	
s.	second, seconds	
s. [l. s. d.]	shilling, shillings	
S. or s.	South, -ern, -ward	
S. A. or		
	S. Amer. South America, -n	
Sam	Samaritan	
Sam	Samuel	
Sans, or		
	Skr. Sanskrit	
Sb.	Antimony [ <i>Stibium</i> ]	
s.c.	understand, supply, namely [ <i>scilicet</i> ]	
S. C. or		
	S. Car. South Carolina	
Scand.	Scandinavian	
Scot.	Scotland, Scotch	
scr.	scruple, scruples	
Scrip.	Scripture [s], Scriptural	
sculp	sculpture	
S. D.	South Dakota	
Se	Selenium	
sec	secretary	
sec	section	
Sem	Semitic	
Sep	September	
Serv	Servian	
Shaks	Shakespeare	
Si	Silicon	

## ABBREVIATIONS.

Sic.....	Sicilian	trigon.....	trigonometry
sing.....	singular	Turk.....	Turkish
sis.....	sister	typog.....	typographical
Skr. or Sans.....	Sanskirt	U.....	Uranium
Slav.....	Slavonic, Slavic	ult.....	ultimate, -ly
Sn.....	Tin [ <i>Stannum</i> ]	Unit.....	Unitarian
Soc.....	Society	Univ.....	Universalist
Song Sol....	Song of Solomon	Univ.....	University
Sp.....	Spanish	U. Presb....	United Presbyterian
sp. gr.....	specific gravity	U. S. ....	United States
sq.....	square	U. S. A....	United States Army
Sr.....	Senior	U. S. N....	United States Navy
Sr.....	Strontium	Ut.....	Utah
.....	Saint	V.....	Vanadium
.....	street	v.....	verb
stat.....	statute	Va.....	Virginia
S.T.D.....	Doctor of Sacred Theology	var.....	variant [word]
subj.....	subjunctive	var.....	variety of [species]
suf.....	suffix	Ven.....	Venerable
Su. Goth....	Suo-Gothic	Venet.....	Venetian
superl.....	superlative	vet.....	veterinary
Supp.....	Supplement	v. i. or v. intr....	verb intransitive
Supt.....	Superintendent	vil.....	village
surg.....	surgery, surgical	viz.....	namely, to-wit [ <i>vide-</i> <i>licet</i> ]
Surv.....	surveying	v. n.....	verb neuter
Sw.....	Swedish	voc.....	cative
Swab.....	Swabian	vol.....	volume
sym.....	symbol	vols.....	volunteers
syn.....	synonym, -y	Vt.....	Vermont
Syr.....	Syriac, Syrian	v. tr.....	verb transitive
t.....	town	W.....	Tungsten [ <i>Wolfram</i> ]
Ta.....	Tantalum	W.....	Welsh
Tart.....	Tartar	W. or w....	West, -ern, -ward
Te.....	Tellurium	Wal.....	Walachian
technol ...	technology	Wall.....	Walloon
teleg.....	telegraphy	Wash.....	Washington
Tenn.....	Tennessee	Westph....	Westphalia, -n
term.....	termination	W. Ind.    {	West Indies, West
terr.....	territory	or W. I... } Indian	
Teut.....	Teutonic	Wis.....	Wisconsin
Tex.....	Texas	wt.....	weight
Th.....	Thorium	W. Va.....	West Virginia
theat.....	theatrical	Wyo.....	Wyoming
theol.....	theology, theological	Y.....	Yttrium
therap....	therapeutics	yd.....	yard
Thess.....	Thessalonians	yr.....	year
Ti.....	Titanium	Zech.....	Zechariah
Tim.....	Timothy	Zeph.....	Zephaniah
Tit.....	Titus	Zn.....	Zinc
Tl.....	Thallium	zool.....	zoology, zoological
toxicol....	toxicology	Zr.....	Zirconium
tp.....	township		
tr. or trans.	transitive		
transl.....	translation, trans- lated		

See also ABBREVIATIONS: in Vol. I.

# IMPERIAL ENCYCLOPEDIA AND DICTIONARY.

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RUTA, n. *rô'ta* [L. *ruta*; Gr. *rhûtē*, the herb rue] : a genus of plants, ord. *Rutacæ*. RUTIC, a. *rô'tik*, applied to an acid obtained from cocoanut-oil, butter, etc. ; capric acid.

RUTA-BAGA : see TURNIP.

RUTACEÆ, *rô-tâ'sê-ë*: natural order of exogenous plants, consisting mostly of trees and shrubs, but containing a few herbaceous plants. The leaves have no stipules, are simple and entire, lobed, pinnate, or decom-pound, and covered with pellucid resinous dots. The flowers are hermaphrodite, sometimes irregular. The calyx has four or five segments; petals are equal in number to its segments, or lacking, or united into a monopetalous corolla; stamens equal in number to them, or fewer by abortion, or twice or thrice as many. There is a cup-shaped disk. The ovary is sometimes stalked; it has as many carpels as there are petals, or fewer; there are generally two ovules in each carpel. The fruit consists of several capsules, cohering firmly or imper-fectly.—There are about 400 known species, natives of warmer temperate and tropical regions. The *Diosma-ceæ* are sometimes separated as a distinct order. A bitter taste and powerful odor are general characteristics. Rue, Prickly Ash, Hop-tree, Citron, Orange, and Lemon are examples of the order. See also ANGOSTURA BARK: BRUCEA. The barks of a number of tropical species, of different genera, possess febrifugal properties.

RUTELA, n. *rô'te-la*, or RUTILA, n. *rô'ti-la* [L. *rutilus*, inclining to golden yellow] : in entom., typical genus of the *Rutelinæ*, the Goldsmith or metallic beetles, a sub-family of *Scarabeidæ*. The claw-joint of the tarsi is very long, enabling the insects to cling firmly to trees. They are beautifully colored beetles, and nearly all from America.

## RUTGERS—RUTGERS COLLEGE.

RUTGERS, *rüt'gərz*, HENRY: 1745, Oct. 7—1830, Feb. 17; b. New York: philanthropist. He graduated at Columbia College 1766; was a capt. in the revolutionary army, and afterward a col. in the N. Y. militia; was a member of the legislature several years, and a regent of the State Univ. 1802–26; owned much land in New York; and gave liberally for public, church, charitable, and educational purposes. See RUTGERS COLLEGE.

RUTGERS COLLEGE: educational institution at New Brunswick, N. J., originally chartered as Queen's College 1766, rechartered 1770, opened 1771, and renamed in honor of Henry Rutgers (q.v.), who gave \$5,000 to aid its resuscitation 1825. It was founded by the Dutch to perpetuate their distinctive theol. and forms of worship, and to 'prepare young men for the ministry and other good offices.' Thus it was connected with the Reformed Dutch Church of America from its inception. Its early history was not encouraging. During the revolutionary war its building was burned by the British, and after attempts to keep it in operation in various parts of the state it was closed for six years. In 1784 the gen. synod of the church founded a theol. seminary, which was opened in New York the following year, when J. R. Hardenburgh, D.D., a Dutch clergyman of New York, became pres. of the college. The college was closed for lack of funds 1795–1805. In 1810 by an arrangement between the trustees of the college and the gen. synod, John H. Livingston, D.D., head of the theol. seminary, was elected pres. of the college, and the seminary was removed to New Brunswick. Financial embarrassment again caused the closing of the college 1816–25, when the gen. synod assumed charge of the college as well as of the seminary, and means were provided for placing the college on a substantial footing. In 1864 the gen. synod transferred all its rights in the college grounds and buildings to the trustees, and the institution became an independent literary college. In 1865 the State College of Agriculture and Mechanic Arts with a farm of 100 acres was attached to the college; 1887 the college began receiving an annual appropriation of \$15,000 from the federal govt. (under the Hatch act of congress); 1888 the legislature of N. J. appropriated \$30,000 for a laboratory for the agricultural experiment station; and 1890 the legislature provided for 240 free scholarships in the scientific school. In 1897 it had 27 professors and instructors, more than 160 students, 33,550 volumes in the library, campus of 7 acres, athletic ground of 4 acres, and 8 buildings. It became a beneficiary of the Fayerweather estate to the amount of \$100,000. The presidents have been: J. R. Hardenburgh, D.D., 1785–90; William Linn, D.D., 1791–94; Ira Condict, D.D. (actg.), 1794–1810; John H. Livingston, D.D., 1810–25; Philip Milledoler, D.D., LL.D., 1825–40; Abraham B. Hasbrouck 1840–50; Theodore Frelinghuysen, 1850–62; W. H. Campbell, D.D., 1863–82; Merrill Edwards Gates, LL.B., 1882–90; and Austin Scott, PH.D., LL.D., since 1890.

## RUTH—RUTEHNium.

RUTH, n. *rôth* [AS. *hreowan*, to be sorry for, to rue: Ger. *reue*; OHG. *hriuwān*, to mourn: Icel. *hryggr*, sorrowful (see RUE 1)]: in *OE.*, pitifulness; pity; sorrow; regret; mercy. RUTH'FUL, a. *-fûl*, pitiful; tender. RUTH'FULLY, ad. *-lî*—are used in poetry only. RUTH'LESS, a. *-lës*, cruel; pitiless; insensible to the miseries of others. RUTH'LESSLY, ad. *-lî*. RUTH'LESSNESS, n. *-nës*, want of compassion; insensibility to the miseries of others.

RUTH, *rôth*, BOOK OF: canonical book of the Old Test., of the Hagiographa, placed in the Authorized Version, as in the LXX., between Judges and Samuel; and in the Jewish canon, as the second of the five Megilloth, following the Song of Songs. It consists of four chapters, and describes how Ruth, the Moabite widow of a Hebrew, Mahlon by name, in the time of the Judges, became—by faithful, loving adherence to her mother-in-law, Naomi, for whose sake she had left her home and kindred—the wife of Boaz, and through him the ancestress of David. A fragmentary genealogy of David's house forms the conclusion of the book, which is characterized throughout by the most naïve simplicity, and minute truthfulness of detail. The book is notable as having for its heroine a 'stranger' to the chosen people, even a Moabite, who was deemed worthy for her virtue to become foundress of the royal house of Israel. Considering that the Book of Kings contains no details about David's genealogy, this book, apart from its indescribable natural charm, becomes a most useful historical record, and further supplies many items on the forms and domestic customs of a time about which we have scant information elsewhere.—The time of the events related is about a century before David, yet both the contents and tendency of the book show that it was written not earlier than the last years of David's reign. For a change had already taken place in the interval in the manners and customs of the people (see the 'in former time,' iv. 7); and the genealogy, carried down to David, shows the theocratic significance that he had acquired when it was written.

RUTHE'NIANS: see RUSSNIAKS.

RUTHENIUM, *rô-thë'nî-üm* (symbol, Ru.; at. wt., 104): metal occurring in platinum ore, and (chiefly) in osmiridium. Of osmiridium one variety is scaly, and consists almost wholly of osmium, iridium, and R.; the other variety contains but a mere trace of R. R. is the most refractory of all metals except osmium, but it has been fused in the hottest part of the oxyhydrogen flame: its density in that state is 11.4; the density of the porous lumps is 8.6. It is more readily oxidizable than silver. The chlorides, oxides, sulphides, and other compounds of R., as well as the metal itself, possess a theoretical rather than a practical interest: they do not enter into the operations of the useful arts. RUTHENIC, a. *rô-thë'n-îk*, denoting an acid.

## RUTHERFORD—RUTHERGLEN.

**RUTHERFORD**, *rūth'ér-ford*, GRIFFITH: about 1731–1800; b. Ireland: soldier. He was a ‘Locke’ settler in w. N. C.; member of the Newberne congress 1775 and of the council of safety; became brig.gen. 1776, June, and commanded a successful expedition against the Cherokee Indians in S. C., Sep.; was captured by the British at the battle of Sanders Creek 1780, Aug.; and after exchange commanded at Wilmington till the close of the war. Subsequently he was a state senator in N. C., and pres. of the legislative council of the terr. of Tennessee.

**RUTH'ERFURD**, JOHN: legislator: 1760–1840, Feb. 23; b. New York; nephew of the Earl of Stirling, and grandson of Sir John R. He graduated at the College of N. J. 1776; was admitted to the bar; removed to N. J. 1787, and was member of the legislature and a presidential elector 1788, and U. S. senator 1791–98; served on several state boundary commissions; became pres. of the board of proprietors of e. N. J.; and after 1798 applied himself to agriculture, public improvements, and the care of a large estate.

**RUTH'ERFURD** (or **RUTHERFORD**), SAMUEL: about 1600–1661, Mar. 20; b. Nisbet, Scotland: Presb. clergyman. He graduated at the Univ. of Edinburgh 1621; was appointed prof. of humanity there soon afterward; resigned 1625, studied theol., and began preaching at Anworth 1627; and was deprived of his living at Anworth and banished to Aberdeen by the high commission court for his severe Calvinism and nonconformity 1636. In 1638 he returned to Anworth, and was chosen a delegate to the gen. assembly; 1639 was appointed prof. of divinity in New College, St. Andrews; 1643–47 was a commissioner to the Westminster Assembly of Divines; 1649 became principal of New College and rector of St. Andrews Univ.; and 1660, in the persecution that followed the Restoration, was deprived of all his offices and ordered to appear before parliament to answer charges of high treason. He died before parliament assembled. His *Lex Rex* was ordered to be publicly burned at the cross of Edinburgh. R. wrote many theol. treatises, and several works on his life and writings have been published. His *Letters*, an admirable devotional work, are still prized.

**RUTHERGLEN**, *rūth'ér-glēn*, or, by popular abbreviation, **RUGLEN**, *rūg'lēn*: royal, parliamentary, and municipal burgh, in Lanarkshire, Scotland; on the Clyde, three m. s.e. of Glasgow. It consists of one long wide street and of several narrow streets or lanes branching from it at right angles. In ancient times it was a place of importance, had large traffic on the river, and comprised Glasgow within its municipal boundaries. Its trade is now dependent mainly on that of Glasgow, and its inhabitants are employed in weaving muslins for Glasgow manufactures, and in the mills, print, chemical, and dye works, and collieries of the burgh and vicinity. Pop. (1881) 11,265; (1891) 13,361.

## RUTHIN—RUTLAND.

RUTHIN, *rûth'in*: municipal and parliamentary borough of N. Wales, county of Denbigh, eight m. s.e. of the town of Denbigh; on the summit and slope of a hill on the right bank of the Clwyd. The site of the ancient castle, said to have been built in the reign of Edward I., is occupied by a fine modern castellated edifice in Gothic. Pop. (1881) 3,034; (1891) 2,760.

RUTHVEN, *rîv'n*, RAID OF: conspiracy of note in Scottish history, contrived and executed 1582 by William, first Earl of Gowrie, father of the principal actor in the Gowrie Conspiracy (q.v.), in conjunction with Lord Lindsay of the Byres, the Earl of Mar, and the Master of Glammis. The object was to obtain control of the state by seizing the person of James VI., then a boy of 16 under guardianship of the Duke of Lennox and Earl of Arran. The king being by invitation at Gowrie's seat of Ruthven Castle, the conspirators assembled 1,000 of their vassals, surrounded the castle, and obtained possession of James. Arran was thrown into prison, and Lennox retired to France, where he died broken-hearted. The Presb. clergy warmly espoused the cause of the Ruthven lords, who received the thanks of the general assembly, and full indemnity from a Convention of Estates. Nearly a year elapsed before the king regained his freedom. His feigned acquiescence in his position led the confederates so to relax their vigilance that he was enabled to throw himself into the castle of St. Andrews, whose keeper was in his confidence, and thus to become his own master. Gowrie and the other lords made their submission, and were pardoned; but soon afterward a royal proclamation characterized their enterprise as treason. Gowrie was commanded to leave Scotland; but while waiting for a vessel at Dundee, he was drawn into a conspiracy to surprise the castle of Stirling, for which he was tried and beheaded.

RUTILE, n. *rô'tîl* [L. *rutilus*, red, shining]: mineral, essentially *Oxide of Titanium* or *Titanic Acid*, though generally containing a little peroxide of iron. It is of brown, red, or yellow color; and is found massive, dispersed in thin laminæ, and in four-sided or six-sided prisms, which permeate rock-crystal. It is found also in granite, syenite, etc. It is used to give a yellow color to porcelain. RU'TILITE, n. -*it*, native silicate of titanium and lime, used in painting porcelain.

RUT'LAND: town, cap. of Rutland co., Vt.; on Otter creek; and on the Bennington and Glastenbury, the Bennington and Rutland, the Central Vermont, and the Delaware and Hudson Canal Co.'s railroads; 55 m. s.s.w. of Montpelier, 68 m. s. of Burlington. The tp. was chartered 1761; the town settled by James Mead 1770; and the town, under the name Socialborough, passed to other parties by a grant of the royal gov. of N. Y. 1771. It was the scene of important milit. movements in the revolutionary war; became cap. of Rutland co. 1781; was one of the caps. of the state for many years; and

## RUTLANDSHIRE—RUTLEDGE.

was the seat of the legislature 1784, 92, 94, 96, 97, and 1804. In 1830 the first marble quarry in the vicinity was opened at Sutherland's Falls, and 1838 the first at W. R. The quarries were not worked regularly till 1843, when William F. Barnes bought for a yoke of oxen quarries now worth many million dollars. Since then 16 quarries have been opened and 12 marble mills established in R. and W. R., which produce annually about 2,500,000 sq. ft. of 2 in. marble. Other industries are the car, machine, and repair shops of the Central Vermont railroad; iron foundries; flour-mills; and manufacture of boilers, nails, furniture, cigars, tile and drain pipe, steam stone-channeling machines, and sashes, blinds, and doors. R. contained (1890) U. S. court-house and post-office; town hall; free public school (opened 1886), high school, and the Fort and Kellogg law libraries; 8 churches; excellent public schools; 2 Rom. Cath. convents; milit. institute; 4 national banks (cap. \$800,000), 2 savings banks (surplus \$110,000), 2 trust companies (cap. \$150,000); and 1 daily, 1 weekly, and 1 monthly publication.—Pop. (1870) town and village 9,834; (1880) 12,149; (1890) 11,760; (1900) 11,499.

**RUTLANDSHIRE**, *rüt'land-shér*: smallest county in England; between Lincolnshire, Northamptonshire, and Leicestershire; greatest length about 20 m., greatest breadth 16 m.; 94,889 acres, or about 148 sq. m. The Wash divides it into two portions, of which the n. is a somewhat elevated table-land, while the s. consists of a number of valleys running e. and w. separated by low hills. The principal streams are the Welland, forming the boundary on the s.e., and its affluents, the Wash and Chater. R. has no manufactures, and its chief mineral production is fine building stone. The climate is mild and healthful, the soil loamy and rich, and there is hardly an acre of waste land. It is not, however, a crop-producing, but a grazing country; and oxen and sheep are reared in great numbers. R. abounds in pleasing scenery, and contains many stately mansions, as well as ecclesiastical remains dating from the Norman period.—Pop. (1881) 21,434; (1891) 20,659; (1901) 19,708.

**RUTLEDGE**, *rüt'lēj*, EDWARD: 1749, Nov. 23—1800, Jan. 23; b. Charleston, S. C.: statesman. He studied law in Charleston and in London; began practicing in Charleston 1773; became member of the first continental congress 1774; signer of the Declaration of Independence 1776; member of the first board of war 1776; delegate to personally consider Lord Howe's proposition for reconciliation, the same year; member of congress 1779; was captured by the British at Charleston 1780; was held a prisoner nearly a year; and after the peace resumed law practice in Charleston. Subsequently he served in the legislature and the constitutional convention, declined the office of assoc. justice U. S. supreme court 1794, and was elected gov. of S. C. 1798.

## RUTLEDGE—RUWENZORI.

**RUTLEDGE**, JOHN: statesman: 1739–1800, July 23; b. Charleston; bro. of Edward R. He studied law in London, and began practicing in Charleston 1761; was member of the ‘stamp-act’ congress 1765, the S. C. convention 1774, the continental congress 1774–5, and the S. C. convention (where he was chairman of the committee on constitution) 1776; was chosen pres. of the state council and state commander-in-chief, but resigned 1778; was elected gov. 1779, and led the state militia against the invading British and in the N. C. campaign; was re-elected to congress 1782; appointed chancellor of S. C. 1784; member of federal constitution convention; appointed judge U. S. supreme court 1789, and chief-justice of S. C. 1791; and became chief justice of the U. S. supreme court 1795. He sat but one term, and retired because of decline of his mental powers.

**RUTTER**, n. *rūt'ér* [Ger. *ritter*]: a horse-soldier.

**RUTULLI**, *rūtū-lī*: people who in the earliest times of which either record or tradition exists, inhabited a small portion of the coast region of Latium (q.v.). Virgil names Turnus, King of the R.; their capital was Ardea. Of the race-affiliation, language, and history of the R. nothing is known.

**UVIGADO**, *rō-vē-gā'dō*: town of the United States of Colombia, dept. of Cundinamarca. Pop. 10,000.

**RUVO IN APULIA**, *rō'vo ī ā-pō'lē-ā*: city of s. Italy, province of Bari, 22 m. w. of the city of Bari. It is on rising ground, contains many churches and two museums of Italo-Grecian vases, and is famous for its potteries. The staple produce is grain, pulse, and dried fruits. R. is the Rubi of Horace.—Pop. (1880) 15,000; (1885) 17,728.

**RUWENZORI**, *rō-wēn-zō'rē*, or **RUWENJURA**, *rō-wēn-jō'rā*: the African ‘Mountains of the Moon,’ mapped for seven centuries, denied as fabulous of late years, rediscovered by Henry M. Stanley 1889, though in part seen by him 1887–8. The Ruwenzori (a varying native name, translated Rain-maker or Cloud-king) is a range about 100 m. long, nearly under the equator, extending, n.e. and s.w., between lakes Albert Nyanza and Albert Edward, n.w. of Victoria Nyanza; and feeding with its melting snows those great head reservoirs of the Nile, 3,500 m. by the course of the river from its mouth. The central third of the range rises above the line of perpetual snow, there 12,000 ft. above Albert Nyanza, and the highest summits, of apparently crater-like form, were estimated to be 18,000 to 19,000 ft. above sea-level. Lieut. Stairs, of the Stanley expedition, ascended 10,677 ft. The dense vapors, from the reeking Semliki valley on the n.w., almost perpetually shroud the range, and have hidden it from the recent African travelers, till the dates mentioned. One of the names applied to the range by natives, Avirika or Avrika, has a surprising likeness to Africa.—See Stanley’s *In Darkest Africa* (1890).

## RUYSBROEK—RUYSSELEDE.

RUYSBROEK, *royss'brök*, JOHN: Flemish mystic: 1294–1381: b. Ruysbröck, near Brussels. At the age of 15 he abandoned study to live a life of meditation and fit himself for priest's orders. While vicar at Sainte Gudule, Brussels, he gained reputation for saintliness, and his sermons attracted many. Urged to become head of a brotherhood, he retired to Gronendale at the age of 60, and founded a monastery of regular canons. It was claimed that he knew all mystic theology by inspiration. The most remarkable of his works is *De Nuptiis vel de Ornati Nuptiarum Spiritualium*. Gerard Groot, Denys le Chartreux, and Aubert le Mire commented on his works. Bossuet considered him one of the ancestors of quietism.

RUYSDAEL, *royss'dâl* (or RUISDAAL), JAKOB: eminent Dutch landscape painter: about 1625–1682, Mar. 14; b. Haarlem. It has been stated, that for some years he studied and practiced surgery, but was advised by his friend Nicholas Berghem to give his time to painting. The details of his life, however, are little known. The earliest date on a picture signed and dated by him is 1645. In his pictures the trees are excellent in form, the foliage touched with sharpness and precision, and the skies are light and floating. His style of composition is entirely original, and characterized by a certain compactness in the arrangement; the Italian painters have generally groups of trees at the sides, and running out of the picture; in R.'s compositions, they are almost always massed within the picture. R. and Hobbema hold about an equal position—that of the best landscape-painters of the Dutch school; but R. was equally eminent for sea-pieces also.—R. was little appreciated in his lifetime, and died in poverty. His etchings, seven in number, are much prized by collectors. Jan van Kessel and Jan Renier de Vries were his imitators.—His elder brother, Salomo, 1613–76, also was a painter of some note.

RUYSSELEDE, *roys'sel-lâ-déh*: market village in W. Flanders, Belgium, seat of an agricultural school founded 1849 for juvenile offenders. There are separate depts. for male and female inmates of the school. Practical instruction is given not only in agriculture, but also in various trades. Attached to the school is a model farm of about 240 acres, of which 20 acres are for the kitchen garden. The school has always not only paid expenses, but yielded profit to the state. Pop. of R. 6,728.

## RYUTER—RYAN.

RYUTER, *rī'tér*, D. *roy'tér*, MICHAEL ADRIAANSZOON DE: Dutch admiral: 1607, Mar. 24—1676, Apr. 29; b. Vlissingen; of poor parents, who sent him to sea as a cabin boy when only 11 years old. He became a warrant officer, and 1635 rose to be a capt. in the Dutch navy. After serving several years in the Indian seas, he was made rear-admiral 1645. He engaged and sank a piratic Algerine squadron off Sallee 1647. In 1652, when war broke out between the States and England, then under Cromwell's Protectorate, he was placed in command of a squadron, and ordered to convoy a large number of merchant-ships. He was met by the English fleet under Sir G. Ayscough off Plymouth, and an engagement took place. Neither of the fleets gained decisive advantage; but R. saved his convoy. In 1653, in a fight of three days between the English and Dutch fleets off Portland, R. commanded a division under Van Tromp. The English, under Blake, finally obtained a great victory, taking and destroying 11 Dutch men-of-war and 30 merchantmen. The states-general, 1659, sent R. to assist Denmark against Sweden. He defeated the Swedish fleet, and obtained a title of nobility and a pension from the king of Denmark. In 1664, he fell upon the English factories at Cape Verde, and attempted to seize the island of Barbadoes. As other depredations of the Dutch on English merchants, as well in the E. Indies as on the high seas, were complained of, war was declared against the Dutch; and 1665, June, R. and Van Tromp, with 90 sail, engaged the English fleet under Prince Rupert and the Duke of Albemarle. Both sides fought with such obstinacy that the battle lasted four days, and ended without decisive result. In July, the conflict was renewed, when the English gained a complete victory, destroying more than 20 of R.'s men-of-war. In 1667, he destroyed the English shipping at Sheerness, sailed up the Medway as far as Chatham, burned several English men-of-war, and effected more toward conclusion of peace at Breda (1667) than any diplomatist. In 1671, he commanded the Dutch fleet, and fought several battles with the combined English and French fleets, but without decisive results. In 1676, he was sent to the Mediterranean to assist Spain against France, and fought, off the coast of Sicily, a desperate battle with the French fleet, under Admiral Duquesne. Victory was on the side of the French; but R. made good his retreat into the harbor of Syracuse. His legs had been shattered in the engagement, and he died of his wounds. All Europe, even the nations hostile to his own, honored his bravery. A splendid monument was erected to his memory at Amsterdam.

RYACOLITE, n. *ri-ăk'ō-lit* [Gr. *rhuax* or *rhuāka*, a lava-stream—from *rheein*, to flow; *lithos*, a stone]: a mineral of a white or gray color, with a vitreous lustre, resembling glassy felspar.

RY'AN, LOCH: see WIGTOWNSHIRE.

## RYAN—RYDER.

RYAN, *rī'an*, PATRICK JOHN, D.D.: Roman Catholic abp. of Philadelphia: b. near Thurles, Ireland, 1831, Feb. 20. He was educated at Thurles and Dublin for the Amer. missionary field; was ordained deacon 1853; came to the United States, finished his studies in St. Louis, and was ordained priest 1854; became vicar-gen. and coadjutor abp. of St. Louis 1872; and was appointed abp. of Philadelphia 1884, June 8. He visited Rome 1883 and 87, took part in the third plenary council of Baltimore 1884, and has published several lectures.

RYBINSK, *rī'bīnsk'*: district town of Great Russia, govt. of Jaroslav, on the right bank of the Volga, 418 m. c.s.e. of St. Petersburg. It is the great centre of the corn trade on the Volga, and, after Nijni-Novgorod, is the chief commercial centre on that river. The trade of R. is principally in transhipping and forwarding to the capital the goods brought by large vessels up the Volga. For this purpose, more than 6,000 barges are built here every year. The landing-place extends along the river for several miles, and is divided into nine sections, each of which is appropriated to special varieties of goods. The chief articles of trade are corn, flour, tallow, spirits, metals, and timber, and these are forwarded to St. Petersburg by three systems of communications, of which the Mariinsky canal conveys goods to the value of \$25,000,000; the Tichvin canal, goods to the value of \$20,000,000; and the Vyshnivolotsk canal, goods to the value of \$10,000,000. There is, besides, the railway.—Pop. (1880) 15,050; (1887) 19,571; (1890) 32,111.

RYDE, *rīd*: flourishing and fashionable Eng. watering-place and market-town; on the n. coast of the Isle of Wight, Hampshire; on the e. and n. slopes of a hill six m. s.s.w. of Portsmouth, from which it is separated by the roadstead of Spit Head. It consists of Upper and Lower R.; the former anciently called *Rye*, or *La Riche*, and the latter quite modern. The shores are wooded to the verge of the water, and the appearance of the town, with its streets and houses interspersed with trees, is pleasing and picturesque. The pier, nearly a mile in length, forms an excellent promenade. Yacht and boat-building are carried on to some extent. Steamers cross every hour to Portsmouth in summer, and several times a day in winter; and there is railway connection with Ventnor. R. is the largest town in the island. Pop. (1881) 11,422; (1891) 10,952.

RYDER, n. *rī'dēr*: a clause added to a document; also spelt RIDER: see under RIDE.

RYDER, *rī'dēr*, JAMES, D.D.: Roman Catholic priest and educator: 1800, Oct. 9—1860, Jan. 12; b. Dublin, Ireland. He early removed to this country, and was educated at Georgetown Coll., D. C., and at Rome, Italy. At first a teacher in the college of Spoleto, he became prof. of theol. and philos. in Georgetown Coll. on his return; was pastor of churches in Philadelphia, and Fred-

## RYE.

erick, Md.; pres. of his *alma mater*; superior of the Jesuit Soc. in the United States 1843-5; pres. of the Coll. of the Holy Cross 1846, at Worcester, Mass.; again pres. of Georgetown Coll. 1848-51. He was highly esteemed as a writer and speaker, and published some sermons and addresses. He died in Philadelphia.

**RYE**: gypsy term for a young man.

**RYE, rī**: village in Rye tp., Westchester co., N. Y.; on Long Island Sound and the New York New Haven and Hartford railroad; 4 m. s.s.w. of Portchester; 24 m. n.e. of New York. In the town of Rye is the large and growing village of Portchester (q.v.). Rye has a beautiful stretch of beach, several fine churches, a girl's seminary, numerous elegant residences, gas and electric lights, and many attractions for suburban and summer life. Valuable granite quarries are worked in the neighborhood. Permanent pop. of the town (1900) 12,861—increased in summer.

**RYE, rī**: seaport and municipal borough in the s.e. of the county of Sussex, England, ten m. n.e. of Hastings. It is charmingly situated on an eminence bounded e. by the Rother, and s. and w. by the Tillingham, which two streams unite here, and, entering the sea two m. below, form the old harbor. The appearance of the town is remarkably quaint and old-fashioned. Overlooking the junction of the streams is a small castle built by William de Ypres, in the reign of Stephen, and now used as a jail. The church is a beautiful and interesting structure—the central tower, transepts, a number of circular arches, etc., all being early Norman. In former times the sea flowed close up to R., washing the rock on which the Ypres tower stands; but it has retired to a distance of two miles. The harbor admits vessels of 200 tons. This ancient town receives historical mention as early as 893. It was walled on two sides by Edward III., and contributed nine ships to the fleet with which that monarch invaded France. Brewing, ship-building, and trade in corn, hops, etc., are carried on. R. is one of the Cinque Ports. Pop. (1881) 4,220; (1891) 3,871.

**RYE, n. rī** [AS. *ryge*; Dut. *rogge*; Dan. *rug*; W. *rhyg*, rye], (*Secāle*): genus of grasses of nat. order *Gramineæ*; allied to Wheat and Barley, and having spikes which generally consist of two-flowered, rarely of three-flowered, spikelets; the florets furnished with terminal awns, only the upper floret stalked. One species (*S. Cereal*) is a well-known grain. It has, when in fruit, a roundish-quadrangular spike, with a tough rachis. Its native country, as in the case of the other most important cereals, is doubtful. It has for ages been cultivated as a cereal plant; though the supposed mention of it Exodus ix. 32, is doubtful, *spelt* perhaps being intended. It is much cultivated in n. Europe and parts of Asia, and in the United States. Its cultivation does not extend so far n. as that of barley; but it grows in regions too cold for wheat, and on soils too poor and sandy for any.

## RYE.

other grain except buckwheat. It thrives best and is most productive in a climate where wheat ripens. It delights in sandy soils but yields large crops in rich loams. Though R. is subject to some variation there are very few clearly defined varieties. The principal division is into winter and spring R., the former sown in autumn, the latter in spring; and the difference has undoubtedly been caused by cultivation. The winter R. succeeds better in most localities than the spring, yielding more grain and longer and better straw. R. is often sown in autumn for green fodder to be used early the following spring. When grown for the grain, the sowing, at the north, should be early in Sep., in land well plowed and finely pulverized. The quantity of seed required varies from about one bushel per acre on poor land to nearly two bushels in rich soils. If drilled in, one bushel is sufficient. For green fodder, three to four bushels per acre should be sown. An average crop of R. contains much less nitrogen, phosphoric acid, and potash than one of wheat, but it requires nearly as much nitrogen, more phosphoric acid, and more than twice as much potash as one of oats. A moderate quantity of phosphatic fertilizer usually gives marked increase in quantity and improvement in quality of crop. R. is cut, with a cradle or reaper, when the straw begins to turn yellow and the grain hardens. The principal disease of R. is Ergot (q.v.). All affected heads should be promptly removed, and if the disease is at all general the whole crop should be mowed and plowed into the ground. R. affected with ergot is a very dangerous food. When possible, seed should be obtained from fields in which the disease has not appeared. Placing the seed in hot brine and then dusting with lime, just before sowing, are preventive measures. In Europe R. is largely used for food. In this country it is less popular than wheat, though considerable quantities are consumed. A good deal is fed to cows and hogs, a small proportion of the crop is exported, and a large quantity is used in the manufacture of whisky. The straw is used for making paper, hats, and numerous other articles. The increase in the quantity of R. produced in this country since 1850 has not nearly kept pace with the increase of population. The average annual quantity now produced is about 33,000,000 bushels. The 4 states producing the largest quantity 1902 were, in the order named, Penn., Neb., and N. Y. In this year the highest average yields were in Mont. and Minn., respectively 25.0 and 22.3 bush. per acre. The lowest yields per acre were 6.3 bushels in Ga., and 7.6 bush. in S. C. The average yield per acre for the country was 17 bush.; average value per bushel 50.8 cents. In most states the legal weight of a bushel of R. is 56 pounds.—**PERENNIAL R.** (*S. perenne*) differs from Common R. in having a very hard, rod-like culm; ears 3-5 inches long, flatly compressed, with a brittle rachis, and 50-60 closely imbricated spikelets. It endures for many years, but is not valuable for cultivation.

## RYE-GRASS.

RYE'-GRASS (*Lolium*): genus of grasses, having a two-rowed, flatly-compressed spike, the spikelets appressed edgewise to the rachis. COMMON R., or PERENNIAL R. (*L. perenne*), the *Ray-grass* of the older English authors, probably the first variety of grass brought under cultivation in England, is frequent on waysides, and in meadows and pastures, in Europe and N. America. The spikelets are much longer than their solitary external glume, 6-8-flowered; the florets awnless or nearly so; the culm flattened, 1 to 3 ft. high; the root producing leafy barren shoots, which add to the agricultural value of the grass. The *Common Perennial R.* has been cultivated in France from very early times and in England since 1674. It suffers from drought, and is not as nutritious as some other grasses. Annual R. is sometimes cultivated; but is inferior.—ITALIAN R. (*L. Italicum*, or *L.*



1, Common Rye-grass; 2, Italian Rye-grass.

*miltiflorum*, or *L. Bouchianum*), native of s. Europe, was introduced into Britain 1831. In some soils it makes a luxuriant growth early in spring. There are better varieties of grass for hay.

## RYEHOUSE PLOT—RYSWICK.

**RYEHOUSE PLOT:** in English history, a scheme formed 1683 to waylay and assassinate King Charles II. on his return from Newmarket. This plot was subordinate to a scheme formed at the same time among the leading whigs to raise the nation in arms against Charles II.; and it was planned by a few fiercer spirits of the party, including Col. Rumsey and Lieut.col. Walcot, two military adventurers; Goodenough, undersheriff of London; Ferguson, an Independent minister; and several attorneys, merchants, and tradesmen of London. The deed was to be perpetrated at a farm belonging to Rumboldt, one of the conspirators, called the Ryehouse Farm, whence the name of the plot. The R. P. is supposed to have been kept concealed from Monmouth, Russell, Shaftesbury, and the rest of those who took the lead in the greater conspiracy. It owed its defeat to the circumstance that the house which the king occupied at Newmarket took fire accidentally, and Charles was thus obliged to leave that place eight days sooner than was expected. Both the greater and lesser conspiracy were discovered before long, and from the connection subsisting between the two, it was difficult altogether to dissever them. The indignation excited by the R. P. was extended to the whole whig party: Lord Russell, Algernon Sidney, and Lieut.col. Walcot were brought to the block for treason; John Hampden, grandson of his more noted namesake, was fined £40,000; and scarcely one of the plotters escaped.

**RYOT**, n. *rī'ōt* [Arab. *raiyat*, a peasant—same word as **RAYAH**, which see; literally, the governed]: in *Hindustan*, a farmer, peasant, or cultivator of the soil. **RYOTWAR**, mode of revenue settlement, or of assessment by govt. officials in India, with each actual cultivator of the soil—at a stipulated money-rent, usually for a year.

**RYSBRACH**, *rīs'břāčh*, MICHAEL: sculptor: 1693–1770, Jan. 8; b. Antwerp. He settled in London 1720, and executed numerous works there; among which were the monuments to Sir Isaac Newton in Westminster Abbey, and to the Duke of Marlborough at Blenheim, a bronze equestrian statue of William III. for the city of Bristol, and a colossal statue of George II. for the parade at Greenwich Hospital.

**RYSWICK**, *rīs'wīk* or *rīz'wīk*, PEACE OF: treaty concluded 1697 at Ryswick, Dutch village between Delft and the Hague; signed by France, England, and Spain Sep. 20, and by Germany Oct. 30. It put an end to the sanguinary contest in which England had been engaged with France. It has been often said that the only equivalent then received by England for all the treasure that she had transmitted to the continent, and all the British blood which had been shed there, was an acknowledgment of William's title by the king of France; but the benefit to the allied nations by the check given to the gigantic power and overweening ambition of France must not be overlooked.

# S

**S, s:** 19th letter of the English and other western alphabets (18th in the Latin), a consonant: it belongs to the dental series, and marks the fundamental sound of the hissing or sibilant group, *s, z, sh, zh*. The Sanskrit has characters for three hissing or *s*-sounds; the Semitic languages had four (see ALPHABET). The Hebrew or Phœnician character, from which the modern *s* is derived, was called *shin*—i.e., tooth, and in its original form probably represented two or three teeth. The same character, with the presence or absence of a diacritic point, marked either *s* or *sh*. In Eng., *s* is used both for the sharp and flat sounds, as *this, those = thoe*. The nearness of the *s*-sound to *th* is seen in the Eng. *loves = loveth*, and in the phenomenon of lisping—*yeth = yes*. This seems to furnish the transition to the so frequent interchange of the High-Ger. *s* for the Low-Ger. *t*, as in Ger. *wasser = water*; Ger. *fuss = foot*. Comp. Gr. *thalassa = thalatta*. For the substitution of *r* for *s*, see R. In such cases as *melt*, compared with *smelt*; *pike*, with *spike*; *lick*, with *sleek*; Ger. *niesen*, with Eng. *sneeze*; Eng. *snow*, Goth. *snaivs*, with Lat. *nix* (gen. *niv-is*); Gr. *mikros*, with *smikros*; *short*, AS. *sceort*, with *curt*—it is difficult to say whether the form with, or that without the *s* is the older. Grimm considers *s* as the remnant of an old prefixed particle (*as, is, us*), having, perhaps, the force of *ex* in Lat. *exopto*, I wish greatly; or *ur* in Ger. *urklein*, very small. An initial *s* before a vowel in Lat. corresponds to Gr. *h*; comp. Lat. *sub, sex, sal* (salt), with Gr. *hypo, hex, hals*. In Greek and Latin, *s* was pronounced feebly at the end of words, and still more so between two vowels. It thus frequently disappeared in these positions, and this was one of the chief sources of the irregularities in the declensions and conjugations, which had originally been formed on a uniform system (see INFLECTION). The dropping of *s* is one of the ways in which the forms of modern French words have become so degraded; compare Lat. *magister*, old Fr. *maistre*, modern Fr. *maître*; *presbyter*, *prestre*, *prêtre*. Even where still written, final *s* in French is mostly silent—e.g., *vos, les*.

**SAAD-ED-DIN**, *sâ'ad-ĕd-dēn'*: Turkish historian: 1536–99; died at Constantinople. His history, *Taj-al-Tuarikh* (the Crown of Histories), a work held in high estimation by scholars, gives a general account of the Ottoman empire from its commencement in 1299 till 1520: it has never been printed, but MS. copies of it are found

## SAADI—SABADILLA.

in most of the great libraries of Europe, and an inaccurate translation into Italian was pub. 1646–52. S. wrote also the *Selim-Nameh*, or History of Selim I., chiefly a collection of anecdotes regarding that prince.

SA'ADI, MUS'LIH-UDDIN': see SADI (Persian poet).

SAALE, sâ'léh: river of Germany, distinguished from other and smaller rivers of the same name by the title Saxon or Thuringian S.; rising on the w. slope of the Fichtelgebirge (Bavaria), and flowing n. through several minor states, and finally across the Prussian province of Saxony. It empties into the Elbe, about 25 m. above Magdeburg, after a course of 200 m. It is navigable only within the Prussian dominions.

SAARBRÜCKEN, sâr'brik-kén: town of Rhenish Prussia, on the Saar, 40 m. s.s.e. of Treves. It is the seat of an active industry, including coal-mining, spinning, the manufacture of cotton fabrics, of iron goods, pottery, and tobacco. Here the German and French armies first met in the war of 1870–1. Pop. (1880) 9,514; with St. Johann, on the other side of the Saar, 21,860; (1890) 13,812.

SAAR'DAM: see ZAANDAM.

SAARLOUIS, sâr-lô'is, F. sâr-lô-é: town of Rhenish Prussia, 31 m. s.s.e. from Treves, and between four and five m. from the frontier of France; on the left bank of the Saar, branch of the Moselle. It is a place of some strength, being walled, and containing several forts, and has considerable importance as a border fortress. There are manufactures of firearms in the town, and lead and iron mines in the neighborhood. There are also wireworks. S. was long in the possession of France, and was fortified by Vauban in the reign of Louis XIV. The congress of Vienna gave it to Prussia 1815. Pop. (1880) 6,789; (1890) 6,844.

SAATZ, sâts (Bohemian, *Zatec*): town of Bohemia, on the Eger, 45 m. w.n.w. of Prague. Hops and grain are largely cultivated in the vicinity. Pop. 10,425.

SABADELL, sâ-vâ-thél': rising manufacturing town of Spain, in Catalonia, 14 m. by railway n.w. of Barcelona. It has risen into importance only within recent years, and it is now the chief seat of manufacture in Catalonia. Woolen and cotton fabrics are made in most of the 100 factories. Pop. (1887) 18,121.

SABADILLA, sâb-a-dîl'a, or CEBADILLA, sêb-, or CEVADILLA, sêv- (*Asagroea officinalis*, formerly *Helonias officinalis*): Mexican plant of nat. order *Melanthaceæ*, whose seeds are employed in medicine, because of properties analogous to those of White Hellebore (*Veratrum album*). The plant has a bulbous root, and grows in tufts; the leaves are linear and grassy, about four ft. long, not more than a quarter of an inch broad; among them rises a round scape (leafless flower-stem), about six ft. high, bearing a very dense raceme, 18 inches long, of small white flowers. The seed-vessels are papery *follicles*, three together; the

## SABADILLINE—SABBATATI.

seeds one, two, or three in each follicle, two or three lines long, winged and wrinkled. The powdered seeds have been known in medicine since the 16th c. They consist of fatty matter, two special organic acids, to which the names *Cevadic* and *Veratric* acids have been given; of varieties of resin, yellow coloring matter, gum, and a highly poisonous alkaloid named *Veratria* in combination with gallic acid; and in addition a French chemist, Couerbe, has discovered a crystalline body named *Sabadilline*.

Notwithstanding its highly poisonous properties, S. is prescribed in parts of Europe as a vermifuge in cases of tape-worm and ascarides. In the form of powder, it is sometimes applied to the head to destroy lice, but if the skin be broken, some other remedy should be selected, as absorption to a dangerous extent might ensue. From its stimulating properties, it is applied externally in the form of tincture (which, however, is not an officinal preparation) for chronic rheumatism and paralysis, and nervous palpitation. The active principle of S., the *Veratria*, in doses of  $\frac{1}{4}$  of a grain, gradually increased, and taken thrice a day, has been found efficacious in acute rheumatism; and in the form of ointment it has been highly commended in scrofulous diseases of the joints. It should be used only under professional care; and its use internally should be at once suspended in case of pain in the throat or stomach, vomiting or diarrhea.—Similar qualities are said to exist in the seeds of *Veratrum Sabadilla*, native of Mexico and the W. Indies, and in some species of *Helonias*, natives of s. parts of N. America.

**SABADILLINE**, n. *săb-a-dăllēn* : in *chem.*,  $C_{20}H_{26}N_2O_5$ . An organic base obtained by exhausting sabadilla seeds with alcohol of sp. gr. 0.845. It crystallizes in stellate groups of cubic crystals which melt at  $200^{\circ}$ , but decompose at a higher temperature; is slightly soluble in hot water, very soluble in alcohol, insoluble in ether. Strong mineral acids decompose it, but it forms salts with dilute sulphuric and nitric acids.

**SABÆ'ANS**: Arabian nation, dwellers in Yemen; whose chief city was anc. Saba; supposed descendants of one, two, or three Shebas: see **SABEANS**.

**SABÆ'ANS**: ancient sect of star-worshippers in Persia and Chaldea: see **SABIAN**.

**SABÆ'ANS**, or **SABE'ANS**, or **SA'BIANS**: oriental sect: see **CHRISTIANS OF ST. JOHN**: also **ZABISM**.

**SABAISM**, n. *să'bă-izm*, or **SABÆISM**, *să-bĕ'izm*, or **SABISM**, *să'bĭzm*: see **SABIAN**: also **ZABISM**.

**SABAOTH**, n. *să'bă-ōth* [Heb. *sebaoth*, the plu. of *saba*, an army or host]: armies; hosts; used only in the scripture phrase of 'Lord of Sabaoth,' meaning Jehovah of Hosts.

**SABBATATI** · see **INSABBATATI**.

## SABBATH.

SABBATH, n. *sabbath* [Heb. *Shabbath*, the Sabbath—from *shabath*, to rest from labor: Gr. *Sabbaton*]: day or time of rest; day of cessation from all ordinary labor or employment; among the *anc.* and *modern Jews*, the seventh day of the week, commencing from sunset on Friday and ending at sunset on Saturday; among *Christians*, the first day of the week, commencing at 12 midnight on Saturday and ending at 12 midnight on Sunday; commonly called Sunday, properly *the Lord's Day* (q.v.—see also SABBATH, below). Among the *Jews*, the name Sabbath was applied also to the Sabbatical Year (q.v.). SAB'BATHLESS, a. -*lēs*, without repose from labor. SABBATH-BREAKER, one who profanes the Sabbath. SABBATH-BREAKING, the breaking or profaning of the Sabbath. SABBATARIAN, a. *sabbata-*  
*rī-an*, pertaining to the Sabbath: N. a rigid observer of the Sabbath; one who keeps the Sabbath on the seventh day. SAB'BATA'RIANISM, n. *-rī-an-izm*, the tenets of the Sabbatarians. SABBATIC, a. *sabbat'ik*, or SABBATICAL, a. -*kal*, pertaining to or resembling the Sabbath; enjoying or bringing rest. SABBATH-DAY'S JOURNEY, distance of nearly a mile, calculated from the walls of the city where they dwelt, which the *Jews* were allowed to travel on the Sabbath. SABBATICAL YEAR, every seventh year (see below). SAB'BATISM, n. *-izm*, rest.

SAB'BATH: the seventh day of the week, set aside, in the Old Test., as a period of cessation from work—declared to have been in the beginning ‘blessed and hallowed’ by God himself as marking the completion of His creative work; and authenticated by Christ, who declared that it ‘was made for man.’ As to its observance as an act of religion, it is sufficient to state that, according to our only available source, the Pentateuch, though the division of the week (q.v.) into seven days is a prominent feature in the story of the creation, the religious celebration of the seventh day as a day consecrated to Jehovah, is mentioned first after the Exodus from Egypt, and seems to have preceded the Sinaitic legislation, which merely confirmed and invested it with the highest authority. On the occasion of the manna (Ex. xvi. 23), the S. and its solemnity seem presupposed, and the ‘Remember the Sabbath-day’ of the Decalogue, further seems to indicate its previous institution. There is no record of its celebration in patriarchal times, though the Semitic traditions of the creation, and of the divine completion of it on that day, had undoubtedly marked it early as a special day of sanctity among the Abrahamites. The significance that was added to it after the Exodus, i.e., as a remembrance of the freedom from bondage, makes it probable that its first legal promulgation dates (as a Talmudical tradition has it) from Marah, where Moses ‘set them laws and rights’ (Ex. xv. 25). While it thus on the one hand formed a sort of general human memento of the creation and the Creator of all things, as it is characterized in the first redaction of the commandments in Exodus, it became also, on the other hand, a national day of record of the bondage and the liberation from it, a reference prominently brought for-

## SABBATH.

ward in the second recension of the Decalogue (q. v.) (Deut. v. 15); thus the 'rest' that was inculcated for every body—kindred, strangers, slaves, even animals—received a double meaning. It is in the latter sense also denominated a sign between Jehovah and the generations of Israel (Ex. xxxi. 13): a kind of badge of nationality, a token of the covenant between Jehovah and Israel forever (Ex. xxxi. 16, compare Ezek. xx. 12, Neh. ix. 13, etc.). It is constantly mentioned together with institutions of the same peculiar nature; such as reverencing the sanctuary (Lev. xix. 30), celebrating the feasts of a national character (Hos. ii. 11), keeping the ordinances (Ezek. xlvi. 17), etc. And in like manner it was made one of the first obligations for proselytes, as one by which they were 'taking hold of the covenant' (Is. lvi. 6). The violation of this law of rest was, as a crime of high treason against Jehovah, punishable with death; yet cessation from labor was only the negative part of the celebration of the day, which is called, like the other festivals, a 'holy convocation.' It is difficult to decide now what precise meaning is to be attached to these words, as referring to the early periods of Israelitish history, particularly before the institution of the prophets or sacred orators had been fully developed. It may be conjectured that the convocation was a kind of general religious assembly, in which readings and some kind of exposition of the law formed the principal features; and there is indeed a tradition to that effect in the Talmud. Some, however, suppose that it was a festive meeting in honor of Jehovah, and refer to Neh. viii. 9–18, for proof that such a celebration was consistent with Jewish notions of keeping days holy to the Lord. As a further celebration of the day, a special burnt-offering, consisting of two lambs of the first year, with the corresponding meat and drink-offering, besides the ordinary daily sacrifice, was instituted, and the shew-bread was renewed in the sanctuary. It is evident that the day was meant for a day of joy and thanksgiving in rest from common labor; no idea of gloom properly attached to it; it was a privilege and a gift for man from God.

Thus far the Pentateuch on the Sabbath. Turning to the later biblical books of the times before the Exile, we find casual references to it as a day of rest and joy, exalted over the other days of the week; and on which agricultural labors and all things connected with them, such as carrying loads, selling and buying, etc., ceased. No deeper signification seems to have been attached to it yet by any enactment. Although both Jeremiah and Ezekiel single it out especially, in common with monotheism and the laws of morality, yet they both rest satisfied with inculcation of its outward observance, which seems occasionally to have fallen into entire disuse. With the return from the Exile, however, a new phase was inaugurated. It is well known how energetically Nehemiah carried out his restoration of the primitive laws; as in other respects so with regard to the S.; how he 'testified' against those who were treading wine-presses on the S., and bringing in sheaves, and lading

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asses, etc., and, further, against those 'men of Tyre' who brought 'all manner of ware, and sold on the Sabbath unto the children of Judah and in Jerusalem.' It is by profaning the S., he urges, that their fathers have caused all the evil and wrath that befell the nation and the city. He had the gates shut from Friday evening to Saturday night, and drove away those merchants who still kept lodging outside, by threats of 'laying hands on them.'

What Nehemiah had reinstated, seems to have been most rigorously upheld, and in many cases made even more binding than the originally promulgated form of his words imply. With respect to the S. in particular, we find it not more than 100 years afterward kept with such unreasoning and blind severity that the people would not even stir in defense of the city of Jerusalem, stormed by the soldiers of Ptolemy I. on that day. Later still, those who had fled into caves to escape the persecution of Antiochus Epiphanes, allowed themselves to be butchered wholesale, nay, burned alive, without attempt at flight or resistance; 'because they made a conscience to help themselves for the honor of the most sacred day' (II Macc. vi. 11). It was only in consequence of these horrible catastrophies, and in consideration of the probability of the enemy's always choosing the hallowed day for his attacks, and thus gradually rooting out the nation, that fighting in self-defense was allowed; though it appears not to have been allowed to disturb the enemy in his siege works. Yet this relaxation in favor of the defensive appears again to have been abrogated through the influence of the fanatical Chassidaic party. Both Pompey and Herod seem to have taken advantage of the S. in preparation for the storming of Jerusalem, relying—and successfully—on the strict observance of that day by their antagonists. The incessant tribulations, however, that followed almost without interruption till the final destruction of the Jewish empire, together with the influence of new schools and views, wrought an immense change. Shammai himself, austere interpreter of the law, and so-called antagonist of the milder Hillel, pronounced not only the defensive but the offensive legal and righteous (Sabb. xix. a): as, indeed, in his days, human life was placed, under all circumstances whatsoever, higher than any divine or human precept about the Sabbath. 'The Law,' it is said with regard to the S., was given, according to the Scriptures, like other laws, 'that man should live by them,' 'not that he should die through them' (Tos. Shab. xvi. 5). That Joshua had never stopped in his sieges on the S., was not considered so weighty an argument as the dire and imminent necessity that forced itself on the military and spiritual leaders of the people, of preserving at all hazards a remnant of the fast perishing nation.

It was probably after the Exile that the first attempts at legally fixing, or rather 'fencing about' the divine ordinance in a minute and rigorous manner, were made. No special definition of the 'work' prohibited—save in a few instances—is found in the Old Test. Whether it was the

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'men of the great synagogue,' or the later schools, that promulgated the special precepts and prohibitions—part of which were traced to the legislation on Sinai itself (Oral Law)—is difficult to decide. The Mishna enumerates 39 principal ('father-') works, each of which, again, carries a certain number of minor ('begotten') works with it, which are strictly forbidden on the Sabbath. A portion of these prohibitions refers to work connected with agriculture and the chase; another to domestic labors generally performed by women (spinning, sewing, etc.); another to trades (of builders, mechanics, laborers, etc.), etc. One of the most harassing of precepts, and one which had at last to be amended by a number of new enactments, was the prohibition of moving things from one place into another (from public to private localities, and *vice versa*). The minor prohibitions referred chiefly to things which might easily 'lead' to the violation of the S., such as riding on horseback, climbing trees, etc. The 'Sabbath-day's journey,' or prohibition, based on Ex. xvi. 29, of walking more than the supposed utmost space between the ark and the extreme end of the camp, seems to belong, in the Mishnaic form at least, to the Roman times; the *mil* to which it was limited, and which contains the requisite 2,000 yards, being a Roman measure. According to the so-called Pharisaical code—i.e., the Oral Law, the highest and absolute authority of later Judaism—the safety of life and limb utterly overrules not only the S., but even the day of Atonement.

As to the meaning and place of the S. in the Old Test. there can be no doubt. It stands as a principal testimony of faith in the Creator of the universe: hence its supreme importance. Though the threatened punishments for S.-breakers seem never to have been carried out to the full during the times of the established commonwealth, yet in the scheme of Judaism it was placed on a par with the entire body of the law. To transgress the S. was, legally, according to Maimonides, to be a heathen.

Regarding the development of the positive side of the Sabbatical observance, we have to mention first, that in conformity with the precept making it a day of 'holy assembly,' the synagogue (quite irrespective of the temple-service, its special sacrifices, prayers, and psalms for the day), assembled the faithful on that day within its precincts in every town and hamlet in and out of Palestine for some period before and permanently, as far as possible, after the final Exile. A certain portion of the Pentateuch, to which afterward was added a prophetical pericope, the Haftarah, was read, translated into the vernacular, and expounded homiletically. Special prayers and psalms, in addition to the ordinary slightly-modified service, with special reference to the sanctity of the S., were said and sung, and the rest of the day was devoted to pious meditation, study in the law, and to serenity and joyfulness. Respecting this last point, it must be borne in mind that the day is distinctly called a *day of joy and delight* (Ps. xcii., Is. lviii. 13, Hos. ii. 11, 13, etc.—the words in Is. translated in the authorized version by 'doing thy pleasure,' in reality mean 'doing

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thy work;' the Hebrew word in this passage exactly corresponding to our 'affairs,' 'business'). Passing from what was divinely ordered, to what afterward became established in Jewish usage, we find a variety of minor regulations referring to bodily indulgences on that day, abundantly proving its recognized character as a 'feast-day' in the natural and general sense of the term, in Judaism. It was to be honored by wearing of finer garments, by three special meals of the best cheer the house could afford (fish, meat, etc.); and it was considered a particularly meritorious thing on the part of the master of the house to busy himself personally as much as possible with the furnishing of the viands, nay, the fetching of the very wood for the cooking, so as to do as much honor to the 'bride Sabbath' as in him lay. Wine, if the means of the individual would allow it, was to crown the repast, special blessings being duly pronounced over it with reference to the holy day, both at its coming in and at its going out. From the circle of the family, this custom of weleoming, as it were, the S., and taking leave of it, with the cup of blessing, with lights, and with spice, found its way at an early period into the synagogue, on account of those strangers who, having to stop on their journey during the 24 hours, were often lodged and fed in or near the synagogue, and on whose behalf the blessing had to be pronounced generally. Fasting, mourning, mortification of all and every kind, even special supplicatory prayers, were prohibited; but on the contrary, the number of 'a hundred benedictions,' said at all varieties of enjoyments of the senses, were to be completed on the S., were it even by eating different kinds of fruit, smelling different spices, etc. Those who study hard during the week were to relax somewhat on that day, while those bent on business all week might indulge more freely in their readings, school children were to be released from hard lessons on that day. Indeed, the Friday itself participated in a manner in the solemnity of the Sabbath; its very name was sunk in 'Eve of Sabbath.' At an early hour in Friday afternoon, trumpets were blown from the steps of the temple in Jerusalem; and certain shops, the stopping of whose business required some time, began to close. Again and again the trumpets resounded at certain intervals, and other trades ceased, as, indeed, nothing might even be begun on Friday which could not be finished or stopped at the end of that day: walking also was restricted to a certain extent on Friday, and judgment over life and death was suspended. At last, when the sun disappeared from the horizon—irrespective of the situation of the place, whence a difference arose between the beginning of the S., among the dwellers in valleys or on elevations—the hallowed period commenced, and lasted until three stars were visible in the following evening.

The original formulas (much enlarged in later times), as far as they are to be traced now, of the introductory benediction, as well as of the valedictory prayer, both of which we subjoin, show the character and scope of the day in Judaism,

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1. (Kiddush.) 'Blessed art Thou, O Lord, our God, King of the Universe, who hath sanctified us by His Laws, and hath made us participate in His Grace, and hath, in His Love and in His Mercy, given us the Sabbath, as a remembrance of the creation, as the first day of Holy Convocations, and in memory of the redemption from Egypt; for Thou hast chosen us and sanctified us from all peoples, and hast given unto us Thy holy Sabbath in Love and in Grace. Blessed art Thou, O Lord, who sanctifieth the Sabbath.'

2. (Habdalah.) 'Blessed art Thou, O Lord, our God, King of the Universe, who divided between Holy and Un-holy, between Light and Darkness, between Israel and the peoples, between the Sabbath and the six days of creation. Blessed art Thou, O Lord, who divideth between Holy and Unholy.'

The same character of cheerfulness, of happy rest from the toil and turmoil of the world's business; of quiet and peaceful 'return into one's self;' of joyous communion with friends and kindred over good cheer—in short, of mental and bodily relaxation and recreation that strengthens, braces, and pacifies, while the sublime ideas which it symbolizes are recalled to the memory at every step and turn—seems to have prevailed at all times, down to our own, among the Jews. There are indeed some exceptional customs among some recent sects, e.g., the Karaites, the Chassidim, etc. (see JEWISH SECTS); but a dark, self-tor-turing spirit is as foreign to the Jewish S. (which is prolonged as far as possible) as it is foreign to the Mosaic and post-Mosaic legislation.

The benefits of the institution itself for the individual are self-evident. It connected, on the one hand, the human being with the divine Creator; and on the other hand with his fellow-creatures, brother and stranger, children and slaves, even the beast of burden, the ox and the ass. Ever recurring, it inculcated reverence, fear, and love of God, the sole Master of all things—man's time and property included; good-will to all things created; and the equality of all men. Proudhon, discussing it from the national-economy point of view, came to the conclusion that the proportion of the six days of work to the one of judicious rest, is one of manifest wisdom, and of great blessing to man.

The notion is sometimes advanced that the S., i.e., the celebration of the seventh day as a day of rest, is an institution common to most of the civilized nations of antiquity (Assyrians, Arabs, Egyptians, Greeks, Romans), from whom Moses has even been charged with having borrowed it. These statements are mistakes. Though the number seven [six and one] is one to which a peculiar significance attached at a very early period, in connection with the calendar (compare the seven worlds, the seven continents, the seven seas, etc., of the Indian cosmogony), and though the weekly cycle of seven days which goes back to the ante-Mosaic period (see Gen. xxix. 27, *seq.*; vii. 4, 10; viii. 10, 12, etc.), is, probably, the common property of the Semitic races; yet there is a wide difference between counting time by seven (the ancient Egyptians had, in fact, a ten days'

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previous to a seven days' cycle), and making the seventh day a 'day of rest and holy convocation,' with reference to the living God and the national life, as in Israel. There is no special sanctity found attached to the day, either with the Egyptians or with the pre-Mohammedan Arabs, who sacrificed on that day, in black garments, in a hexagonal black temple, an old bull to Saturn; exactly as they sacrificed a boy on another day of the week, sacred to the planet Jupiter. As for the Greeks, the only authenticated passage with reference to the subject, is Hesiod's (*Op. et D.* 770, etc.), reference to the seventh day of the month, sacred to Apollo, as other days were sacred to other gods. Other verses quoted by Clemens Alexandrinus and Eusebius, as from Homer and Hesiod, are proved to be spurious Judæo-Hellenic fabrications. The Roman calendar knows absolutely nothing of a hallowed seventh day.

Thus much on the S. under the 'Old Dispensation.' We have still to consider it in relation to the Christian Church; and then to trace the progress of opinion and practice in regard to the observance of the first day of the week, which, though frequently styled the Sabbath, or more definitely, the Christian Sabbath, is more properly termed the Lord's Day.

It is to be observed that all the discourses of the Lord Jesus were addressed to Jewish hearers, subject, like himself, to the Mosaic law. That he is nowhere recorded to have enjoined the observance of the S. has by some been thought significant; but seems natural in a case where those whom he addressed, so far from neglecting the duty, were superstitiously scrupulous in its performance. What his hearers needed and received was the lesson, that, the S. having been intended for human benefit, the duty of observing it ought to give way before the higher duty of effecting that purpose, when the two were in conflict; and that acts demanding no great exertion were not to be confounded with that exhausting labor and toil which was the thing truly forbidden. (Matt. xii. 1-14; Mark ii. 23-28; iii. 1-6; Luke vi. 6-11: compare Hosea vi. 6; Psal. l. 8-14; li. 16, 17; Is. i. 10-17; Jer. vi. 19, 20; vii. 21-23; I Sam. xxi. 6.) Some have thought—almost after the manner of the Pharisees—that by making clay on a S. to anoint the eyes of a blind man; and by ordering an invalid, when cured, to carry home his bed on another S., Christ designed to intimate, if not the present abolition of the S., at least its approaching end. But others deem the former of these acts too small an exertion to be confounded with 'servile work,' and the latter as an exceptional case within the scope of the principle above stated. On no occasion does Christ appear to have sanctioned real 'work' on the seventh day, unless it was demanded by some duty higher than that of bodily rest.

For several years after the death of the Lord Jesus, the church included almost none but Jews; and by these the S. and other Mosaic rites continued to be observed as before. It was not till Peter's visit to the centurion Cornelius A.D. 41, that the Gospel began to be preached largely to the

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Gentiles; and when the apostles and elders met at Jerusalem to consider what was to be done with the Gentile brethren, it was decided that no Mosaic burden should be laid upon them beyond abstinence from certain practices, of which working on the S. is not one (Acts xv. 23-29). This omission may have had for its reason, as some claim, that the S. was not deemed important in the Christian scheme; but its far more probable reason was, that the Gentile converts had accepted it as a privilege rather than classing it among Mosaic burdens, or that (as is evident) no full catalogue of Christian duties was then set forth. In any event, the Judaizing party continued in various places to demand more or less conformity to the law on the part of the Gentile converts. This party was strenuously withheld by Paul (q.v.), in whose Epistles reference to the dispute frequently recurs. From his letters to the churches of Rome, Galatia, and Colosse, which contained both Jews and Gentiles, we learn that, while the Jews too strenuously required the Gentiles to observe the Sabbaths prescribed in the law as a sign of their subjection to the Mosaic ordinances, the Gentiles were too ready to treat the observance of Jewish ceremonies with an unchristian contempt. On both parties the apostle enjoins mutual forbearance and respect; forbidding the Jew who esteemed one day above another to disturb the Gentile who esteemed every day alike, and ordering the Gentile to refrain from contemning the observances conscientiously performed by his 'weaker brother' the Jew (Rom. xiv.; Col. ii. 11-17). That Paul never taught the Jewish Christians to abandon the observance of the law, but, on the contrary, continued to the end to observe it himself—as appears from Acts xxv. 8; xxviii. 17; Philip. iii. 6—are facts of which different explanations have been given by theologians; some thinking that the law continued binding on the Jews, whether Christians or not, so long as the Temple and its ordinances stood; while most are of opinion that conformity to the rooted notions and habits of the Jews was tolerated for a time, in order that the diffusion of the Gospel might not be impeded among them: they were to be left—as concerned outward observances—to the gradually deepening spiritual influence of the Gospel. In the Eastern churches, where the proportion of Jews was greater than in the West, the S. continued to be observed till the 5th c., when we lose sight of the Ebionites (q.v.), a sect of Judaizers such as Paul withheld—and of the more moderate Ebionitic Nazarenes, who, though they conceived it their *own* duty to circumcise, keep the S., etc., had no desire to impose the peculiarities of Judaism on the Gentile Christians. Till the present day, however, S.-keeping and various other Jewish rites continue to be practiced together with Christian observances by the Christians of Abyssinia, whose ancestors, it is probable, derived them either (as a tradition among them indicates) from missionaries of the Alexandrian Church, of which many members were Jews, or from expatriated Hebrews who settled in Abyssinia at some much earlier date. In other countries also many of the Gentile

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Christians seem to have anciently observed the S., if not by resting the whole day from work, at least by attending on it the religious meetings of their sabbatizing Jewish brethren.

Hitherto we have spoken of the observance of *Saturday*, the day of rest prescribed to the Jews, and to which exclusively the name of the S.-day was anciently applied, and still continues to be given by every nation but the British, and its offshoots. At what date the Lord's Day, or first day of the week, began to be generally used by Christians as a stated weekly time for religious meetings, we have no definite information either in the New Test. or in the writings of the Fathers of the Church (q. v.). By none of the Fathers before the 4th c. is the Lord's Day identified with the S.; nor is the duty of observing it grounded by them either on the fourth commandment, or on the precept or example of Christ or his apostles, or on an ante-Mosaic S.-law promulgated to mankind at the creation and continuing in force after the coming of Christ. To the reality of such a law—which many modern Christians have deduced from Gen. ii. 2, 3; iv. 3; vii. 4, 10; viii. 4, 10–12; xxix. 27; l. 10; Ex. xvi. 4–30, and which some (as Bp. Horsley, Serm. 22) regard as an indispensable basis for a Christian S.—it has been objected that the attention of the Gentile converts, who must be supposed to have been ignorant of the law in question, is nowhere found in Scripture to have been directed to it by Paul; that his declarations of their freedom from a compulsory legal observance of days are so general as to apply to every law on that subject, whenever enacted; that consequently he must either have been unacquainted with a primeval law, or (if not) have regarded it as obsolete under the new dispensation; and lastly, that the Fathers, had they known such a law, would have mentioned it in their writings, instead of vindicating (as Justin, e.g., does in his *Dialogue with Trypho the Jew*) the neglect of S.-keeping by Gentile Christians, on the ground that the S. began with Moses and was not observed by the Patriarchs. By none of the Fathers is any S.-law represented as being in force among the Gentile converts. It is to be remembered, however, that though the Fathers are valid witnesses as to the facts and usages of their times, and may be deemed instructive counsellors as to duty, they have no authority in Christ's church to set forth laws.

On what grounds, then, did the Christians observe the first day of the week as a time for religious assemblies?—and how and when did the custom of so distinguishing it begin? To these questions, very different answers have been given. According to some theologians, apostolic precept or example is the only conceivable origin of a custom apparently so general as well as early; and of such example at least, they find evidence in John xx. 19, 26; Acts ii. 1; xx. 6, 7; I Cor. xvi. 1, 2; and Rev. i. 10. But others, doubting or denying the conclusiveness of this scriptural proof, conceive that an adequate explanation may be found in the circumstances of the primitive Church. That the desire which naturally actuates the members of every new

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and unpopular religious sect to meet frequently for worship, instruction, and mutual encouragement, might very soon lead to the fixing of stated days for that purpose, may be assumed as self-evident; that a weekly day should be chosen, would be a natural result of the Jewish habits of the earliest Christians; and that the day on which their Lord had risen victorious from the grave should be thought fittest for this weekly festival, is precisely what was to be expected in their circumstances. But the resurrection of the Lord Jesus is not the only reason assigned by the Fathers for the honor which they paid to the First-day. By Justin (see *JUSTINUS*), in whose *Apology for the Christians to Antoninus Pius*, ss. 87-89, written between A.D. 138 and 150, the earliest undoubted mention of First day meetings in the works of the Fathers occurs, several reasons for holding them *then* are assigned—the first being, that on this day of the week the world and light were created; and the second being the resurrection of Christ. ‘We all of us,’ says he, ‘assemble together on Sunday, because it is the first day in which God changed darkness and matter, and made the world. On the same day, also, Jesus Christ, our Savior, rose from the dead; for he was crucified on the day before that of Saturn, and on the day after that of Saturn, which is that of the Sun, he appeared to his apostles and disciples, and taught them what we now submit to your consideration.’ To these reasons, Origen (*Seventh Hom. on Exod.*) adds the fact that manna was given to the Israelites first on a First-day; while subsequent writers adduce various other events, either recorded, or by them imagined, to have occurred on that day. In arguing with Trypho, Justin opposes S.-keeping by Christians, on grounds which would have been retorted by the Jew as condemning equally the observance of a First-day S., had the First-day at that time been regarded as the S.: from which fact—and the circumstance that in his *Apology* already spoken of, where he professes to give Emperor Antoninus a full account of the observance of the day, no mention is made of rest from labor as a part of that observance—the inference has been drawn, that, except during the time of divine service, the Christians in this Father’s age thought it lawful to follow, and actually did follow, their worldly pursuits on the First Day. It is true that by Tertullian (latter half of 2d c.) the Christians are described as ‘putting off even their business on the Lord’s Day, lest they might give place to the devil’ (*De Orat.* c. 23); an indication, in Neander’s opinion (*Church Hist.* I. 409, Bohn’s ed.), that now the Jewish law of the S. had begun to be applied to the Lord’s Day. The soundness of this inference has been questioned (Dr. Hessey, *Bampton Lectures*, 1860, p. 63). But whatever may have been the opinion and practice of these early Christians in regard to cessation from labor on the Lord’s Day, unquestionably the first law, either ecclesiastical or civil, by which the sabbatical observance of that day is known to have been ordained, is the edict of Constantine, A.D. 321: ‘Let all judges, inhabitants of the cities, and artificers, rest on the

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venerable Sunday. But in the country, husbandmen may freely and lawfully apply to the business of agriculture; since it often happens that the sowing of corn and planting of vines cannot be so advantageously performed on any other day; lest, by neglecting the opportunity, they should lose the benefits which the divine bounty bestows on us' (*Cod.* iii. 12, 3). Before this time, such of the Christian writers as had endeavored, by a mystical style of interpretation, to turn the Mosaic ceremonies to account as sources of moral and religious instruction, had, probably in imitation of Philo (q.v.) (*Works*, III. 265, Bohn's ed.), spiritualized the law of the S. to the effect of representing it as a mystical prohibition to the Christian of evil works during all the days of his life, and a prefiguration of the spiritual repose and enjoyment which is his portion both in this world and in the next. But in addition to this significance, there now began to be discovered in the Old Test. foreshadowings of the new Lord's-Day-S.; and Eusebius (q.v.), Bp. of Cæsarea, friend and biographer of Constantine, was able to descry in Ps. xlvi. 5, and lix. 16, prophetic allusions to the *morning* assemblies of Christians, on the Lord's Day for worship, and in Psal. xxii. 29, a prefiguration of the weekly celebration of *the Lord's Supper* on that day. Applying Ps. xcii. to the first day of the week, the same writer says that 'the Word, by the New Covenant, translated and transferred the feast of the Sabbath to the morning light, and gave us the symbol of true rest—viz., the saving Lord's Day, the first of the light,' etc. From other passages in Eusebius, and subsequent writers, it is plain that they meant, not that this transference had been formally ordained by Christ or his apostles (of which there is no trace in Scripture), but that by rising from the tomb on the first day of the week he had made that day more illustrious than the S., and more worthy to be celebrated by Christain assemblies for worship than the S. was to be similarly honored by the Jews. About the end of the 4th c., Chrysostom is found similarly expounding Gen. ii. 3, which, in his opinion, shows that already from the beginning God offered us instruction typically, teaching us to dedicate and separate the one day in the circle of the week wholly to employment in things spiritual—thus (as his translator observes) making the S. a *type* of the Lord's Day, and rest *from* bodily, of rest *in* spiritual work. (*Library of the Fathers*, IX. 209.)

It was a natural result of Constantine's law, backed by such interpretations of the Old Testament as these, that tendencies toward a confusion of the Christian with the Jewish Sabbath began to be manifested, though not to a great extent till the end of the 5th c. Afterward they developed themselves more decidedly. About the end of the 9th c., Emperor Leo, 'the Philosopher,' in effect established the Lord's Day as a S. by law (Leo. *Const.* 54). Naturally thereafter the fourth commandment would more than ever be employed by the clergy as the means of urging the observance of the new day. The theory of the binding force of the Decalogue on Christians, and of the holiness of days,

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was vigorously opposed by Luther and the other Reformers; who denounced also the excessive multiplication of festivals, and proclaimed that the pardon of sin was not to be secured by their observance, or otherwise than by faith in Christ. (See Luther's *Larger Catechism*; the *Augsburg Confession*, 1530, c. vii.; Calvin's *Institutes*, b. ii. ch. viii. ss. 28-34; and his other writings on the subject, collected by R. Cox in *The Whole Doctrine of Calvin about the Sabbath and the Lord's Day*, Edin. 1860). But, while condemning everything which they viewed as Judaizing, or as abuses, the Reformers never ceased to urge the manifold utility and high importance of the First Day as a day of rest, worship, and decorous enjoyment. Like the later Fathers and the Schoolmen, also, they recognized in the fourth commandment the most useful instruction and exhortation; but they utterly rejected it as a law. 'The Ten Commandments,' says Luther, 'do not apply to us Gentiles and Christians, but only to the Jews.' (*On the Ten Commandments*.) 'A law,' says Grotius, 'obliges only those to whom it is given; and to whom the Mosaic law is given, itself declares: "Hear, O Israel.'" (*De Jure Belli et Pacis*, lib. i. c. i. s. 16.) He quotes also Deut. iv. 7, and Ps. cxlvii. 19, 20. This is not Antinomianism (q.v.): the Reformers acknowledged their subjection not only to the more perfect and spiritual law of Christ, but also to that universal and perpetual law which Paul (Rom. ii. 14) speaks of as the light to the Gentiles of old, who 'not having the law, were a law unto themselves, showing the work of the law written in their hearts.' See ETHICS. For the view which may be regarded as now prevalent in the Christian world—certainly among Christians in the United States—concerning the authority of the Decalogue on this as on other points, see LORD'S DAY, THE.

The distinction by the Reformers, however, between Moses as a lawgiver and Moses as a teacher, is evidently too fine to be readily grasped by the common mind; it was overlooked by the multitude, and disregarded in popular discourses by the clergy themselves; so that in England, where the writings of the Reformers were less studied than in Germany, the fourth commandment was increasingly regarded as a Sabbath law binding absolutely on all men not for a mystical or ethical but for a literal Sabbath. Accordingly, in the reign of Elizabeth, it occurred to many conscientious and independent thinkers (as it had previously done to some Protestants in Bohemia), that the fourth commandment required of them the observance, not of the first day but of the specified *seventh* day of the week, and a strictly bodily rest as a service then due to God; while others, though convinced that the day had been altered by divine authority, took up the same opinion as to the scriptural obligation to refrain from work, and applied it to the First Day. The former class became numerous enough to make a considerable figure for more than a century in England under the title 'Sabbatarians'—a word now exchanged for the appellation 'Seventh-day Baptists.' The other and much larger class were the Puritans (q.v.), who,

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justly offended by the vices and frivolity of the times, but also made stern by fierce persecution and by the tremendous corruptions which they were called to withstand, and giving a narrower scope than the Reformers had done to the teaching of Paul—added to the keeping of the Lord's Day an austerity by which neither it nor the S.-keeping of the Jews had ever before been marked. (See ASCETICISM.) This great party, when predominant for a time in the reign of Charles I., availed themselves of the opportunity to establish their Sabbatarian opinions, through what has proved to be the lasting and influential means of the *Westminster Confession* and *Catechisms*. (See ASSEMBLY OF DIVINES : CATECHISM: CREEDS AND CONFESSIONS.) Chiefly through these formularies was effectually introduced into Scotland that scrupulous abstinence from recreation as well as business on Sunday, which still distinguishes, and in the view of many blesses and dignifies, the people. For it is a mistake to suppose that either Sabbatarianism or asceticism was recommended by Knox. Agreeing with the other Reformers, Knox, in setting forth in his *Confession of Faith* (1560) ‘the works of the First Table,’ says not a word about the Sabbath. Knox’s *Confession* and the *Geneva Catechism* were adhered to in Scotland till superseded 1648 by the new Westminster standards of faith. Nor is it only to the British Presbyterians that the opinions and habits of the Puritans have descended; the learned body of Independents, who, with some Eng. Presbyterians, formed largely the Puritan colony in New England, planted in that new soil the strict Sabbath-keeping of the First Day which has held its place till the present generation in those eastern states—beginning only in recent years to undergo any extensive modification. In large portions of New England this Sabbath-keeping had even the Jewish peculiarity of being observed from sunset to sunset. In America, too, exists now the principal remnant of the Seventh-day Baptists. (See Rupp’s *Relig. Denom. in the United States*, 70–111 ; Mrs. Davis’s *History of the Sabbatarian Churches*, Philad. 1851 ; and publications of the Amer. (Seventh-day) Sabbath Tract Society.)

In Holland, though some English Puritan settlers gave birth to a controversy which, during the greater part of the 17th c , engaged the pens of many eminent divines (e.g., Gomarus, Walæus, Rivetus, Cocceius, and F. Burmann), the principles of the Reformers, favored by Grotius among the laity, ultimately kept their ground, as they have done also in Prot. Germany. Yet in Holland were produced the two bulkiest defenses of Sabbatarianism ever published—one, in Latin, by John Brown, an expatriated Scotchman who had been minister of Wamphray, entitled *Causa Dei contra Anti-Sabbatarios* (2 vols. Rotter. 1674–76); the other, in Dutch, by his friend, James Koelmann, on *The Controversy, History, and Manner of Observance of the Sabbath and the Lord's Day* (Amst. 1685).

In England the earliest considerable treatise on the Puritan side was the *Sabbathum Veteris et Novi Testamenti* of Dr. Nicholas Bound, minister in Suffolk (Lond. 1595; 2d

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ed. 1606). It is in English, though the title is partly Latin. Many converts were made by it and the similar works of Greenham and Widley, his contemporaries; but till the heterodoxy of the Seventh-day Baptist Brabourne aroused 1632 the indignation of the bishops, little noise seems to have been made throughout the nation by the controversy; nor would it, perhaps, have ever attained much prominence had not Charles I. committed, 1633, the blunder, and, as the Puritans believed, the gross impiety, of reviving his father's *Declaration concerning Lawful Sports to be used [on Sundays]*. (See SPORTS, BOOK OF.) This the clergy were required by Abp. Laud (q.v.) to publish in their churches, and many who refused were punished severely. Hence arose the greatest English controversy about the S., between the high-church party on the one hand, and the Puritans on the other. Bp. White (*Treatise of the Sabbath day*, 1635) and Dr. Heylin (q.v.) (*History of the Sabbath*, 1636), took the lead for the high-church, and were ably supported by Sanderson (*A Sovereign Antidote against Sabbatarian Errors*, 1636), Ironside (*Seven Questions of the Sabbath briefly Disputed*, 1637), Taylor (*Holy Living*, ch. iv. s. 6, and *Ductor Dubitantium*, b. ii. ch. ii. rule 6, ss. 43-62), and Bramhall (*On the Controversies about the Sabbath and the Lord's Day*, in *Works*, fol. p. 907). On the Puritan side were Henry Burton (*The Lord's Day the Sabbath Day*, 1636), John Ley (*Sunday a Sabbath*, 1641), Hamon L'Estrange (*God's Sabbath before the Law, under the Law, and under the Gospel*, 1641), Richard Bernard (*A Threefold Treatise of the Sabbath*, 1641), William Twisse, prolocutor of the Westminster Assembly (*Of the Morality of the Fourth Commandment, as still in force to bind Christians*, 1641), and jointly Cawdrey and Palmer, two members of the same assembly, in their *Sabbatum Redivivum, or the Christian Sabbath Vindicated* (2 vols. 1645-52), the most elaborate defense of Sabbatarianism in our language. A still more eminent writer on that side, and one of greater breadth of view, was Dr. John Owen, whose *Exercitations concerning a Day of Sacred Rest* (1671), since prefixed to his *Exposition of Hebrews*, gave, however, some offense to his friends by advocating an unprofitable duration of the religious exercises of the day. Since then, the Sabbatarian cause has been maintained by numberless writers; among whom may be mentioned Bp. Hopkins, Willison, Jonathan Edwards, Timothy Dwight, Stopford, Macfarlan, and others; while the opposite side has been supported by Baxter, Milton, Barrow, Barclay, Morer, Michaelis, Paley, Evanson, Higgins, etc.

In the first half of the reign of George III., the comparative neglect into which the observance of the Lord's Day had fallen in England aroused the anxiety of its friends, and many efforts were made to bring the people to a better disposition. Paley did excellent service, especially by his chapter on the use of Sabbatical Institutions (*Moral Philosophy*, b. v ch. vi.); while Bp. Porteus successfully exerted himself to check open indulgence in vicious and unseemly amusements. About the same time, the new 'Evangelical' (q.v.) party began its efforts for strict observance of

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Sunday according to the Puritan model. But what, perhaps, had most effect in turning the current of English public opinion in that direction was the substitution in France of the Decade (see DECA) for the Week, and the abolition of public worship, by the national convention in 1793 (see CALENDAR); proceedings which brought to the aid of the pious advocates of the Lord's Day the political conservatism and anti-Gallican feelings of the British people.—In the next generation, the revival of the study of ancient Christian literature led to fresh advocacy of the Lutheran views concerning the S. and the Lord's Day, by Bp. Kaye (*On Justin Martyr*, 1829), Dr. Whately (*Thoughts on the Sabbath*, 1830), Bannerman (*The Modern Sabbath Examined*, 1832), and the Oxford 'Tractarians'; while Sabbatarianism had influential advocates in Bp. Mant (*The Christian Sabbath, its Institution and Obligation*, 1830), Dr. Daniel Wilson, afterward Bp. of Calcutta (*The Divine Authority and Perpetual Obligation of the Lord's Day Asserted*, 1830), and Dr. Ralph Wardlaw (*Discourses on the Sabbath*, 1832)—in support of whose principles was founded 1831 the London 'Society for Promoting the Due Observance of the Lord's Day,' which, aided by similar associations in Scotland and the United States, still keeps jealous watch on behalf of the institution. The attempts, however, to suppress all post-office action on Sunday, all stated conveyance of passengers on railways, and such recreations as walking in public gardens, listening to music in the London parks, and viewing works of nature and art in the national collections, seemed, even to many friends of the institution, to show more zeal than wisdom or knowledge; and led to the formation (1855) of 'The National Sunday League'—a soc. which, while deprecating the conversion of any part of the day into a season for ordinary labor, or for frivolous or vicious amusement, conceives that a more cheerful mode of spending some of its hours is expedient, and that the opening of public gardens, museums, and galleries of art, would promote alike the health and the moral and intellectual elevation of the people.

In France, where the Week was restored by Napoleon I., 1806, the 'Sunday' has not yet recovered its former status as a day of rest; but efforts have lately been made by both clergymen and laymen to convince the people of the advantage of suspending all but necessary labor upon it. In Switzerland, Mellet, pastor of Yvorne, is author of a clever treatise on *Sunday and the Sabbath*, of which there is an English transl. (Lond. 1856). Bred a Sabbatarian, he was converted to the Dominical view by reading Dwight's Sabbatarian *Discourse on the Perpetuity of the Sabbath*, a doctrine still upheld by the 'evangelical' party in Switzerland.

Of late years the bearing of geological discovery on the interpretation of the Hebrew narrative of the creation, and consequently on the S. controversy, and, in particular, on questions arising out of the discrepancy between the two copies of the fourth commandment, has been largely discussed: see GENESIS: DECALOGUE. It is to be observed

## SABBATH.

with warm approval that notwithstanding the wide diversity of opinion as to the Mosaic authority of the Lord's Day and the manner in which it may and ought to be spent, almost all agree in esteeming it highly as a civil institution at least, and in wishing to defend it from the intrusion of business as far as the public good will allow.—For additional information and discussion, see (on the Sabbatarian side) Holden's *Christian Sabbath* (Lond. 1825); *Report from the Select Committee of the House of Commons on the Obs. of the Sabbath Day* (Sir A. Agnew's committee), 1832, Aug. 6; Jordan's *Scriptural Views of the Sabbath of God* (Lond. 1848); M'Crie's *Memoirs of Sir A. Agnew* (Edin. 1850); Pirret's *Ethics of the Sabbath* (Edin. 1855); Fairbairn's *Typology of Scripture* (3d ed. Edin. 1857); J. Gilfillan's *Sabbath Viewed in the Light of Reason, Revelation, and History, etc.* (Edin. 1861); and (on the Dominical side) Arnold's *Sermons*, III. (Lond. 1844), and his *Life by Stanley*, 5th ed. I. 364, and II. 206; Neale's *Feasts and Fasts* (Lond. 1845); Sir W. Domville's *Examination of the Six Texts commonly adduced from the New Test. in proof of a Christian Sabbath* (Lond. 1849); Hengstenberg on *The Lord's Day*, trans. by J. Martin (Lond. 1853); F. D. Maurice's *Sermons on the Sabbath-day* (Lond. 1853); R. Cox's *Sabbath Laws and Duties* (Edin. 1853); Domville's *Inquiry into the Supposed Obligation of the Sabbaths of the Old Testament* (Lond. 1855); *Sunday the Rest from Labor*, by a Christian (Lond. 1856); Dr. W. F. Hook on *The Lord's Day* (Lond. 1856); *Time and Faith* (Lond. 1856); Alford's *Greek Testament with Commentary* (Lond. 1856–61); F. W. Robertson's *Sermons*, 1st and 2d series (Lond. 1856); Baden Powell's *Christianity without Judaism* (Lond. 1857); Reichel's *Lord's Day not the Sabbath* (Dubl. 1859); W. Logan Fisher's *Hist. of the Institution of the Sabbath-day, its Uses and Abuses*, 2d ed. (Phila. 1859); Dr. J. A. Hessey's *Sunday; its Origin, History, and Present Obligation*, Bampton Lectures for 1860; and *Edin. Review*, Oct. 1861, 535. Of the Brit. Seventh-day Baptists the principal works are those of Brabourne (1632), F. Bampfield (1677), Cornthwaite (1740), Burnside (1825); of the Amer., Dr. A. H. Lewis's many and able writings (see *The Outlook* magazine, a Sabbath quarterly). The Rom. Cath. doctrine respecting the Lord's Day is amply stated in *The Catechism of the Council of Trent* (1567), Part III. 351–357, 391–403 of the Eng. transl. (Lond. 1852). As to all shades of opinion, see R. Cox's *Literature of the Sabbath Question* (2 vols. Edin. 1865). Proudhon's work, above referred to, is entitled *De la Célébration du Dimanche considérée sous les Rapports de l'Hygiène Publique, de la Morale, des Relations de Famille et de Cité* (Paris 1850).—For views and suggestions as to the spirit in which the Lord's Day is to be received and kept by Christians, see **LORD'S DAY, THE.**

## SABBATHAI ZEWI.

SABBATHAI ZEWI, *sâb-bâ-tâ'ê zâ'vâ*: one of the most remarkable 'Messiahs' of modern times, founder of a widespread sect of semi-Christians and semi-Jews throughout Europe, Asia, and Africa; b. of Jewish parentage, at Smyrna 1641; said to have died 1677. A boy of extraordinary gifts, he had at the age of 15 mastered the Talmud, and at 18 was an adept in the mysteries of the Cabbala. Soon incited by fantastic dreams and foolish friends, he declared himself the Messiah, sent to shake off the thralldom both of Christianity and of Mohammedanism from the Jews, and to convert all humanity. The supreme rabbinical council thereupon excommunicated him, and afterward declared him an outlaw. Expelled from Smyrna by the municipal authorities, he went to Saloniki 1659, and two years later to Palestine, and then to Alexandria, accompanied by several thousand disciples—many being persons of wealth and station. He had great personal beauty and a fiery eloquence; and at Alexandria his power and influence grew so rapidly, that the revenues of the kingdom to be founded by the new Messiah, and the means of supporting the wars that he was to wage, were seriously considered.

In 1664, no fewer than about 80,000 people belonged to the new empire; and in the following year, the beginning of the Messianic reign within a few months, and the re-building of the Temple in the next year, were proclaimed aloud in the streets of Alexandria by S. and six disciples, all clad in white raiment, with garlands on their heads. Returning to Jerusalem, he proclaimed the resurrection, to take place within six years, and the deposition of the sultan, whose crown would be placed on S.'s head. The Jews of Asia, Africa, and Europe, became divided into two camps: those who believed, sold their property to get ready-money for their journey to, and final abode in, the new capitol, Jerusalem; but others, and some of the highest spiritual authorities, declared all the pretended Messiah's miracles cabbalistic tricks, and himself an impostor. Returning to his native place, Smyrna, he was received with royal honors. Meanwhile, the attention of the Turkish govt. was drawn to this movement, and S.'s arrest, imprisonment, and examination were ordered; but the janizaries returned without him, not having dared 'to stretch forth their hand against the sacred man.' He now offered to surrender voluntarily, and was committed as a prisoner of state. When, at last, he was brought before the sultan, his courage failed, and he declared himself nothing more than a simple rabbi: it was only his disciples, he averred, who had called him a Messiah. The sultan then proposed to test his 'mission,' by three poisoned arrows to be shot at him; if these proved harmless, the sultan would at once become his follower. In speechless terror, S., at the instigation of his Jewish interpreter, now took the turban from the head of some official, and placed it upon his own, thereby indicating, as the interpreter declared, that his sole object all along had been to embrace Islam, and to carry over all the Jews with him. The sultan declared himself satisfied, and

## SABBATIA—SABBATICAL YEAR.

honored him with the title of an effendi, giving him an honorary post.

But this extraordinary movement was far from having reached its end. The most wonderful stories were circulated among the believers. A fictitious man was supposed by some to have embraced Islam, while the real Messiah had ascended heavenward. Others believed that Islam was to form part of the new religion; and S., countenancing this view, converted many Jews to Mohammedanism. Nathan, one of his most enthusiastic disciples, travelled about, and caused strife without end, even sanguinary revolts. Many, however, had turned from him by this time, and the voices of the rabbis began to be listened to. Finally, the grand vizier was persuaded to imprison S. once more, and to send him to Bosnia, where he died in a prison in Belgrade—according to some by poison, while according to others he was put to death ten years after his conversion to Mohammedanism. His case is most remarkable: he was not accused of immorality; and none denied his extraordinarily brilliant powers of mind, or his erudition. Probably, he was a self-deceiver whose transient strength and final weakness were in his egotistic dreams. His death, however, brought a reinforcement of his sect, which even many of his former antagonists now joined; and its tenets then became developed into a proper religious system—that of the Sabbathaites or Sabbathians (Shebsen), the chief apostles being Nehemiah, previously an enemy of S.; and Nehemiah Hajun, who taught the dogma of the Trinity as part of the new faith. It became a principle of this religion to accept and to modify itself to the dominant creed of the country—Islam in the East, Christianity in the West. Remnants of it still exist in Poland and Turkey. See JEWISH SECTS.

**SABBATIA**, *săb-bă'ti-a*: genus of plants of nat. order *Gentianaceæ*, natives of N. America, the general name American Centaury. The corolla is 5–12 parted, wheel-shaped; leaves entire, sessile, opposite or whorled; flowers white or pink, mostly handsome. They are small herbaceous plants, some with simple, and some with branched stems, and nearly all the species occur on low sandy or wet grounds on the coast. They all contain, like many others of the same order, a pure bitter principle, on account of which they are useful in intermittent fevers and as a tonic.

**SABBATICAL YEAR** (Heb. *Shenath*, *Shabbathon*, *Shebiith*, *Shemittah*; Gr. *Hebdomatikos* or *Sabbatikos enian-tos*): every 7th year, set aside in the law of Israel as a sabbath or rest for the land and people. There are in the Pentateuch four special injunctions as to its celebration. The first (Exod. xxiii. 10, *seqq.*) ordains that the land after six years' culture should be left to itself in the seventh, so that the poor, and the beasts of the field should eat its spontaneous growth. The second (Lev. xxv. 2–7) views the hallowed period as a ‘Sabbath of rest unto the land’—as a solemnity in honor of Jehovah, and enjoins, further, that the growth of the seventh year be for proprietor, servants, and strangers, i.e., common property. In the third

## SABBATON—SABEANS.

passage (Deut. xv. 1-11), the creditor is enjoined to release the debts owing to him by his poor brother and neighbor. It was and is disputed whether this 'release' means the entire giving up of the debt, or a mere respite. The Mishna decided for the former; but the effects of this view were so injurious that they were counteracted by an act called the *Prosbul*, passed by Hillel the Great. The fourth passage (Deut. xxxi. 10-13) contains the command to read, in the solemnity of the year of release in the 'Feast of Tabernacles,' the Law before all the people in holy convocation, men, women, children, and strangers. The fundamental idea of the S. Y. is identical with that of the weekly Sabbath; see also JUBILEE, the highest exaltation of the idea of sabbatical rest. Its practical working (see I Macc. vi. 49, 53; Jos. *Ant.* xiv. 16, 2, etc.), seems to have been fraught with difficulties; and it is thought not to have been kept before the Exile. Like the Jubilee, it was to be proclaimed on the 10th day of the seventh month, at the end of harvest. Doubts have been expressed as to the Jubilee (q.v.) ever having been kept in reality; yet there is no reason for the least doubt about the rigor with which the S. Y. was observed, after the Exile, till a very late period Alexander, Cæsar, and the late emperors exempted the Jews from tribute during it. The S. Y. being one of the 'ordinances attached to the land'—i.e., Palestine only—it ceased with the final overthrow of the Jewish commonwealth.

**SABBATON**, n. *săb'a-tōn* [OF. *sabatine*—from *sabot*]: in old arm., a round-toed, armed covering for the foot, worn during a part of the 16th century.

**SABBIONETTA**, *sâb-bē-ō-néltâ*, or **SABBIONETA**, *sâb-bē-ō-nâ'tâ*: city of n. Italy, province of Cremona; in a marshy district, abundant in pasturage. It was cap. of a principality given by Napoleon I. to his sister Pauline 1806, and was a place of consequence; now it is decayed, the pop. (less than 2,000) decreasing.

**SABBIRE**, n. *săb'bîr* [etym. doubt.]: a piece of timber; a beam.

**SABEANS**, or **SABÆANS**, *sâb'bîr*: Arabian nation, dwellers in Yemen, whose chief city was anc. Saba; supposed descendants of one, two, or three Shebas mentioned in the Bible. Historically, the S. appear chiefly as the inhabitants of Arabia Felix, or Yemen (n. of the present Yemen), whose principal city was Saba, and whose queen is said to have visited Solomon, attracted by the fame of his wisdom. Josephus, however (*Ant.* viii. 6, 5), makes her the queen of Ethiopia (Meröe), and the modern Abyssinians claim her as their own. Her name, according to their tradition, was Makeda; and her visit to Jerusalem made her not only a proselyte to the religion of Solomon, but she became one of his wives, and had by him a son, Menilek, who afterward ruled Ethiopia (q. v.). The Arabs, on the other hand, called her Balkis, the earliest name that occurs of a Himyaritic queen; but no historical value attaches to this tradition more than to the innumerable

## SABEANS—SABELLIUS.

legends that have clustered round her name in connection with the great king.

Numerous passages in Greek and Roman writers, as well as in the Bible, testify to the vast importance of these dwellers in Yemen as a wealthy, widely-extended, and enterprising people, of fine stature and noble bearing. Their chief greatness lay in their traffic, which was principally in gold and gems, spice, incense, and perfumes. The S. held the key to India, and were the intermediate factors between Egypt and Syria, which again spread the imported Indian wares over Europe; and even when Ptolemy Philadelphus, b.c. 274, had established an Indian emporium in Egypt, the S. still remained monopolists of the Indian trade, the only navigators who braved the perilous voyage. As in many other respects, they resembled the Phoenicians in this also, that, instead of informing other people of their sources and the tracks of their ships, they spread preposterous tales about the countries that they visited, and claimed as the product of their own country much of what they sold. Being merchants of those things which the luxury of late classical times considered absolute necessities, they could not fail to gather enormous riches; e.g., in the 3d c. of the Roman empire, every pound of silk—a material used in enormous quantities—that came from Arabia was paid by a pound of silver, at times even of gold. As a consequence, the S. became luxurious, effeminate, and idle. The pictures of them drawn by the classic writers are doubtless exaggerated. The meanest utensils in the houses of these merchant princes were—if we were to credit those writers—wrought in the most cunning fashion, and of gold and silver; their vases were incrusted with gems, their firewood was cinnamon. Their colonies must have extended over immense tracts of Asia—the Ethiopian S. probably being one of the first foreign settlements; yet nothing beyond conjectures can be given about them. Regarding their government, Dio Cassius informs us that they had a king, who never was allowed to leave his palace. Respecting their religion, see ZABISM. Their language is supposed to have been a Semitic (Arabic) dialect, almost entirely lost to us now. Some tablets with Himyaritic inscriptions have been found, but their readings are not satisfactorily fixed. See SEMITIC LANGUAGES: ARABIA: SANAA.

SABE'ANS, or SA'BIANS, or SABÆ'ANS (oriental sect): see CHRISTIANS OF ST. JOHN.

SABELLIAN. n. *sa-bē'lī-an*: follower of *Sabellius* (q.v.), philosopher in the 3d c., who taught that there is only one person in the Godhead: ADJ. pertaining to Sabellius and his doctrines. SABEL'LIANISM, n. -izm, the tenets of Sabellius.

SABELLIUS, *sa-bē'lī-ūs*: celebrated African anti-Trinitarian of the 3d c.; b. probably at Ptolemais in the Pentapolis, where certainly first his opinions were promulgated. Nothing is known regarding his life—the few statements current being contradictory and untrustworthy; but it is generally thought that he did not broach his peculiar tenet till shortly before his death—the date of

## SABELLIUS.

which also is unknown. S. is pronounced by Neander ‘the most original and profound thinker among the Monarchians’—i. e., the Unitarians; but unfortunately only a few fragmentary notices of his teaching have been preserved, and these by his theological adversaries. It appears that he did not reject the Scriptural phraseology used in speaking of the Godhead. ‘Father,’ ‘Son,’ and ‘Holy Ghost’ were sacred and venerable names to him as well as to orthodox Christians; but he was strongly opposed to the ecclesiastical conception of this Trinity, as a Trinity of distinct persons, or subsistences (*hypostases*), which he (like many persons since) held to be absurd and unthinkable, and argued that what is to be understood is a Trinity of manifestation or a Trinity of modes of the Divine Being; the single absolute Divine Essence—the *monas* or ‘pure Deity,’ unfolds itself in creation and the history of man as a Trinity. But he seems to have failed to note that the unchangeableness of God’s being makes it indispensable in our thought to assign for this distinct manifestation in time some ontological basis in His eternal essence: his recognition of this fact, however, would not have brought him into accord with the church doctrine of the Trinity. His words, as quoted by Athanasius, are *He monas platonis theisa gegone trias*. The ‘energy’ by which God called into being and sustains the universe is the ‘Logos,’ after whose image men were created; but when they had fallen from perfection, it became necessary for the ‘Logos,’ or Divine Energy, to hypostatize itself in a human body, in order to raise and redeem them; hence, in the man Christ Jesus dwelt the fullness of the Godhead *bodily*; while the same Divine Energy, operating spiritually and impersonally in the hearts of believers, is the ‘Holy Ghost.’ His important divergence from ecclesiastical orthodoxy was his tenet that these Divine ‘manifestations’ were not eternal, but merely temporary; and that after the ‘Logos’ and the ‘Holy Ghost’ had done their work, they would be reabsorbed in the absolute Deity—the *trias* would again resolve itself into the *monas*; or, in the language of St. Paul, that ‘God would be all in all.’ Epiphanius alleges that S. derived his system from an apocryphal ‘gospel to the Egyptians;’ and there are (as Neander points out) many points of resemblance in Sabellianism to both the Alexandrian Jewish theology in general, and the particular document referred to. The followers of S. were formally suppressed by the church in the 4th c.; but his doctrine—which, divested of its Gnostic and Neo-Platonic phraseology about ‘emanation’ and ‘re-absorption,’ etc., is one of several possible forms of Unitarianism—has seldom lacked advocates in any subsequent age.—Sabellianism, while philosophically Unitarian, is rather a speculation on the Divine Being as indivisible into persons, than a denial of the deity of the Lord Jesus Christ, whom indeed it identifies as the very manifestation of God Himself.—Consult Tillemont’s *Memoirs*; Lardner’s *Credibility of the Gospel*; and Church Histories of Mosheim, Neander, and Milman.

## SABER—SARINES.

SABER : see SABRE.

SABIAN, n. *sā'bī-ă̄n*, or SABÆAN, n. *sā-bē'ă̄n* [Heb. *saba*, army or host—applied particularly to the heavenly host of the angels, or to the celestial bodies] : a worshipper of the host of heaven ; one of an ancient sect of star-worshippers in Persia and Arabia. Also an adherent of a heathen sect which arose in the 9th c., and borrowed its religion from ancient Syria and from Greece : ADJ. pertaining to the Sabians or their worship (also see SABIANS, below). SA'BIANISM, n. -*izm*, or SABÆANISM, n. *sā-bē'ă̄n izm*, or SABEANISM, n. worship or doctrines of the Sabians : see ZABISM.

SA'BIANS, or SABE'ANS, or SABÆ'ANS (oriental sect) : see CHRISTIANS OF ST. JOHN.

SABICU, *sāb-ī-kō'* (*Acacia formosa* ; see ACACIA) : tree whose wood is remarkably hard and tough ; native of Cuba. The wood is of dull red color, and close short grain. It was used for the stairs of the Crystal Palace in Hyde Park 1851, showing little wear in six months.

SABINE, *sāb'īn*, Sir EDWARD: major general in the Brit. army, and renowned physicist: 1788, Oct. 14—1883, June 26; b. Dublin. He obtained a commission as second lieut. in his 15th year, and accompanied Ross and Parry as astronomer in their expedition (1818–20) (see NORTHWEST PASSAGE). In a series of voyages he made very valuable magnetic observations. In 1836 and 7 he made important reports to the Brit. Assoc. on the variations of magnetic intensity at different places ; and similar reports from that time till 1872: see *Transactions* of the Brit. Assoc., and of the *Royal Soc.*; also *Philosoph. Transactions*. His labors led to discovery of the laws of ‘magnetic storms,’ of the connection between certain magnetic phenomena and the changes of the solar spots, and of the magnetic action (independently of heat) of the sun and moon on the earth. Largely to him was due the establishment of magnetic observatories in all parts of the world, those in the Brit. colonies being under his control for many years. In 1850 S. became vice-pres. and treasurer, and 1861 pres. of the Royal Soc. He was for 8 years sole gen. sec. of the Brit. Assoc., and its pres. 1853. In 1856 he was raised to the rank of maj.general.

SABINE, *sā-bēn'*, RIVER: stream rising in n.e. Tex., and flowing s.e. 250 m. to the e. boundary of Tex.; whence, flowing s., it forms the e. boundary, and empties through Sabine Bay, 18 m. long by 9 m. wide, into the Gulf of Mexico. The S. is 500 m. long, but shallow and unnavigable.

SABINES, *sā'bīnz* (Lat. *Sabini*): ancient people of central Italy, whose territory lay n.e. of Rome. The exact boundaries are not known ; but it appears to have extended from the sources of the Nar, on the borders of Picenum, as far s. as the Anio. The nations conterminous to the S. were the Umbrians on the n., Umbrians and Etruscans on the w., Latins and Æqui on the s., Marsi and Picentini on the e. The entire length of the Sabine territory did not exceed 85

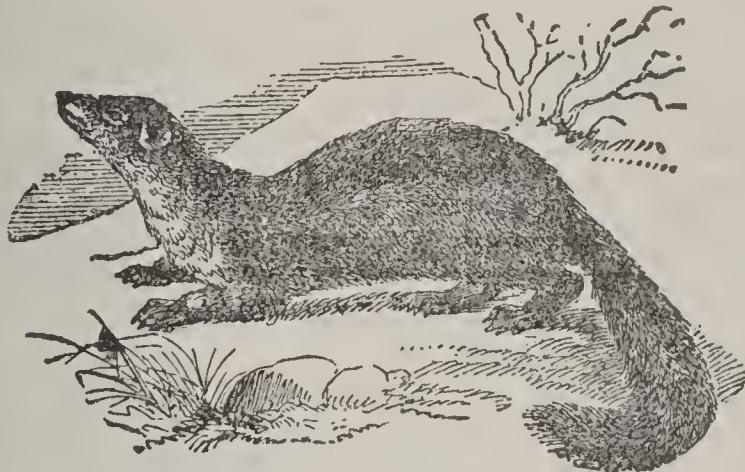
## SABLE.

m., reckoning from the lofty and rugged group of the Apennines, anc. known as the *Mons Fisellus* (now *Monti della Sibilla*), to Fidenæ on the Tiber, about 5 m. from Rome. The inhabitants had no inducements to congregate in large towns. Their country was an interior region; much of it, especially in the n., mountainous and bleak, though the valleys were (and are) often richly productive; and thus cut off from the seaboard, and from easy access to their neighbors they (like the other sequestered races of the Apennines) scarcely advanced beyond the rude simplicity of their highland hamlets. The S. were a brave, stern, religious race, whose virtues were austere and homely. Livy notes the 'stern and grave discipline of the old Sabines;' and the poets of the Empire—Horace, Virgil, Juvenal, etc., are fond of contrasting their simple, uncontaminated modes of life with the vicious luxury and dissipation of the capital. What part, if any, they had in founding Rome is not known (see ROME). Their native tutelary deity was 'Sancus,' or 'Semo-Sancus' = Lat. *Sanctus*, the 'Holy' or 'Venerable;' but like the other Latino-Sabellian races, they worshipped also Jove, Mars, Minerva, Sol, etc. That the S. were an ancient people in Italy, is certain. They were probably most nearly allied to the Umbrians, whose tutelary god also was 'Semo-Sancus'; but becoming numerous they sent forth colonies which founded new nations to the s. and e., the Picentes, Peligni, Samnites (q.v.) etc.; while the Samnites (a name essentially the same as *Sabini*; the Greek form *Saunitai* = *Sav-nitæ* = Oscan name *Safni* or *Sabini*) in their turn became progenitors of the Lucanians, Campanians, and Brutii. Hence the epithet, *Umbro-Sabellian*, among classical ethnologists, to denote the whole of these kindred races, who were allied also, but less closely, to the Latins (q.v.) and Oscans (see Osci). Of the Sabine language, only a few words remain: these indicate that it differed from the Latin only dialectically: thus, Lat. *hircus*, Sab. *fircus*; Lat. *hostis*, Sab. *fostis*, etc.; analogous to the Aberdeen *filk* for 'whilk,' *fat* for 'what,' etc. See further, ROME (History).

SABLE, n. *sā'bl* [OF. *sable*; It. *zibellino*; Ger. *zobel*; Russ. *sobole*, the sable]: species of Marten (q.v.): the fur of the animal: ADJ. black; very dark. SABLES, n. plu. *sā'blz*, in *OE.*, articles of dress faced or adorned with sable fur; a rich and courtly costume; habiliments of mourning: in her. tinctures implying black, represented by perpendicular and horizontal lines crossing.—The *Sable* (*Martes zibellina*) is found in n. Asia, and n. Russia in Europe; it belongs to the weasel family (*Mustellidae*). It is so nearly allied to the Common Marten and Pine Marten, that it is difficult to state satisfactory specific distinctions. The American pine marten is often called the American sable. The feet are covered with fur, even on the soles, and the tail is perhaps more bushy than in martens. The length, exclusive of the tail, is about 18 inches. The fur is brown, grayish-yellow on the throat; and small grayish-yellow spots are scattered on the sides of the neck. The whole

## SABLE ISLAND—SABLES D'OLONNE.

fur is extremely lustrous, hence of the very highest value, an ordinary S. skin being worth \$30 or \$35, and one of the finest quality \$75. The fur attains its perfection in the beginning of winter, and the pursuit of the S. at that season is a difficult and adventurous enterprise. The S. is a native of Siberia, widely distributed over that country, and found in its coldest regions wherever forests extend. Geographical discovery in e. Siberia has been much indebted to the expeditions of the hardy and daring S.-hunters, exploring new regions at the worst seasons of



Sable (*Martes zibellina*).

the year, and spending dreary months far from human abodes. The S. is taken by traps, which are a kind of pit-fall, it being necessary to avoid injury to the fur; or by tracking it through the snow to its hole, and placing a net over the mouth of the hole. It is very wary, and not easily captured. It makes its nest in a hollow tree, or sometimes, it is said, by burrowing in the ground; and lines it with moss, leaves, and grass. From this, it issues to prey on hares and smaller animals of almost any kind, its agility enabling it even to catch birds among the branches of trees. When food is scarce, it will eat the remains of an animal on which a larger beast of prey has feasted, and is said even to satisfy its hunger with berries in winter, when animal food is not to be had.

SA'BLE ISLAND: see NOVA SCOTIA.

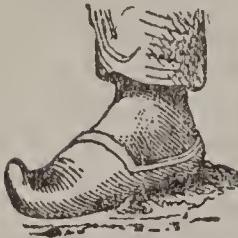
SABLES D'OLONNE, LES, *lā sâb'l do-lö'n'*: seaport of France, dept. of Vendée. It owes its early importance to Louis XI., who excavated the port, and raised the fortifications. In 1688, its merchant marine was more important than that of either Nantes or Rochelle. The commerce is in grain, wines, cattle, fish (sardines), salt, etc. Pop. about 10,000.



Sable.

## SABOT—SACCHARIC.

**SABOT**, n. *sa-bō'* [F. *sabot*]: wooden shoe much used by the French and Belgian peasantry, especially in moist and marshy districts, as protective of the feet from external moisture. The making of sabots is an important French industry, chiefly in the depts. of Aisne, Aube, Maine-et-Loire, and Vosges. After being made, they are subjected to the smoke of burning wood, till they acquire the reddish color prized in certain countries.



**SABOTIÈRE**, n. *sá-bō'ti-är* [F. *sabotière, sarbotière*, an ice-pail, for *sorbetière*—from *sorbet*, sherbet, an ice]: a French apparatus for making ices.

**SABRE**, n. *sā'bér* [F. *sabre*—from Ger. *säbel*, a sabre: Hung. *szablya*, a sabre—from *szabni*, to cut]: sword for cavalry, with a broad and heavy blade, thick at the back that the blow or thrust may carry more force, and having the edge usually a little curved backward at the point like a scimitar: V. to wound or kill, as with a sabre. **SA'BRING**, imp. -*ing*. **SA'BRED**, pp. -*bér'd*.

**SABRETASCHE**, or **SABRETACHE**, n. *sā'bér-tăsh* [F. *sabre*, a sword: Ger. *tasche*, a pocket: Ger. *säbeltasche*]: leatheren case or pocket worn by some cavalry officers at the left side, and suspended from the sword belt: useless square accoutrement which dangles against the legs of officers, and purports to be a pocket for conveyance of dispatches, etc., but probably is seldom used. It is covered with gold brocade, the emblems of the regt., and other devices.

**SABRINA LAND**, *sá-brē'nā*: discovered in the Antarctic Ocean 1839, Mar. 20, by Balleny; lat.  $69^{\circ} 58' s.$ , long.  $121^{\circ} 8' e.$  See **ANTARCTIC OCEAN**.

**SABULOUS**, a. *sā'bū-lūs* [L. *sab'ulum*, coarse sand, gravel]: sandy; gritty. **SAB'ULOS'ITY**, n. *lōs'i-ti*, sandiness; grittiness.

**SAC**, n. *sāk* [AS. *sacu*, lawsuit]: in Eng. law, the ancient privilege enjoyed by the lord of the manor of holding courts.

**SAC**, n. *sāk* [AS. *sacc*; F. *sac*—from L. *saccus*, a sack, a bag]: a bag or membranous receptacle.

**SACCADE**, n. *sāk-kād'* [F. *saccade*, a jerk]: a sudden check or jerk with the bridle.

**SACCATE**, n. *sāk'kāt*, or **SAC'CATED**, a. [L. *saccus*, a bag]: in bot., furnished with a sac, or having the form of one; gibbous.

**SACCHARIC**, a. *sāk-kār'ik* [L. *sac'chārum*, sugar—from Gr. *sakchar*, *sakcharon*, sugar], ( $C_6H_{10}O_8$ ): applied to bibasic acid, product of the action of nitric acid, under certain conditions, on grape and cane sugar, or on starch, gum, and lignine. It occurs as a colorless, inodorous, deliquescent, gummy, uncryallizable mass, freely soluble in alcohol. It is sufficiently powerful to dissolve iron and zinc, with extrication of hydrogen. **SACCHARIFEROUS**, a.

## SACCHARILLA—SACCOMYIDÆ.

săk'ka-rif'er-üs [L. *fero*, I produce]: yielding sugar. SACCHARIFY, v. săk-kär'i-fi [L. *faciō*, I make]: to convert into sugar. SACCHARIFYING, imp. SACCHARIFIED, pp. -fid. SACCHARIN, n. name given to three distinct compounds, viz., the uncrystallizable sugar of malt-wort; the anhydrid of saccharic acid; and the complex coal-tar derivative C<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>.CONH. The latter substance is declared to be 230 times as sweet as refined cane-sugar. Mixed in the proportion of 1 : 1,000 with grape-sugar it is said to render the mass as sweet as the best cane-sugar. SACCHARINE, a. săk'ka-rin or -rin, pertaining to sugar; having the qualities of sugar; sweet. SACCHARINE FERMENTATION, the fermentation by which starch is converted into sugar, as in the process of malting. SAC'CHARITE, n. -rit, a species of felspar, found in fine granular masses, of a white color. SAC'CHAROID, a. -royd, or SAC'CHAROI'DAL, a. -roy'dal [Gr. *eidos*, resemblance]: having a texture resembling that of loaf-sugar. SAC'CHARIM'ETER, or SAC'CHAROM'ETER, n. -rōm'ē-ter [Gr. *metron*, a measure]: instrument for indicating the quantity of sugar in a liquid, based on the fact that saccharine solutions rotate the plane of polarization of a ray of light passing through them—some kinds of sugar rotating the plane to the right, others to the left (see POLARISCOPE): in its mechanical working the instrument resembles a hydrometer or Areometer (q.v.). SAC'CHARIM'ETRY, n. -ē-trī, or SACCHAROM'ETRY, art or method of ascertaining the quantity of saccharine matter in a liquid. SAC'CHARUM, n. -rūm, genus of grasses widely distributed through the tropical parts of the world, including the Sugar-cane (q.v.). SAC'CHAROSE, n. -rōz, chemical name for cane-sugar.

SACCHAKILLA, n. săk-a-ril'a: a kind of muslin.

SACCHOLACTIC, a. săk'kō-läk'tik [L. *sac'chārum*, sugar; *lac*, milk]: applied to an acid obtained from the sugar of milk, or from gum—now called mucic acid.

SACCIFORM, a. săk'sī-fawrm [L. *saccus*, a bag; *forma*, shape]: like a bag.

SACCO-, prefix, săk-o: furnished with a sack or pouch, or any sack-like process or organ.

SACCOLABIUM, n. săk-o-lā'bī-ūm [prefix *sacco-*; mod. L. *labium*, lip]: in bot., a large genus of *Sarcanthidæ*; named from a pouch in their lip. Beautiful orchids, epiphytes, from India and Madagascar, now frequently cultivated in greenhouses.

SACCOMYIDÆ, săk-ō-mī'i-dē [Gr. *sakkos*, sack; *mus*, mouse]: family of N. Amer. rodents, characterized by fur-lined cheek-sacks not opening into the mouth, and by long saltatory hind legs; also by peculiar details of skull structure. There are four molars on each side of either jaw; in one tribe, the *Perognathinæ*, the upper incisors are smooth and wide; in the *Saccommynæ*, narrow and furrowed; and, in the *Dipodomynæ*, smooth, while the molars are without roots. There are six or more species, in the west and extreme south. They are not to be confounded with the common so-called jumping mice. Some are very small; others equal rats in size.

## SACCOTOO—SACHEVERELL.

SACCOTOO': see SOKOTO.

SACCULE, n. *săk'üł* [L. *sac'culus*, a little bag—from *saccus*, a bag]: a little sac; a satchel; a cyst or cell. SACCULI, n. plu. *săk'üł-i*, any little cells or inclosures, as the sporangia inclosing the spores of the club-mosses; any minute investing membranes.

SACELLUM, n. *sa-sĕl'lüm* [L. dimin. from *sacrum*, a sacred place]: in *Rom. arch.*, a small unroofed inclosure containing an altar sacred to a deity; in *Eccles. arch.*, a small monumental chapel within a church; generally taking the form of a square canopied inclosure, with open sides formed by stone screens, the tomb in the centre being used as an altar, and having an altar screen at its head. Within these chapels, masses were said for the repose of the souls of those buried there.

SACERDOTAL, a. *săs'ér-dō'tal* [L. *sacerdōtālis*, sacerdotal—from *sacerdos* or *sacerdōtem*, a priest—from *sacer*, sacred; *do*, I give]: pertaining to priests or the priesthood; priestly. SACERDO'TALLY, ad. *-tal-lī*. SACERDO'TALISM, n. *-izm*, the spirit of the priesthood.

SACHEL, n. *săch'ēl*: see SATCHEL.

SACHEM, n. *să'chém*: a chief among some of the Indian tribes of N. America. SACHEMDOM, n. *să'chém-dom*, the government or jurisdiction of a sachem. SACHEMSHIP, n. *să'chém-shíp*, the office, dignity, or position of a sachem; sachemdom.

SACHET, n. *săch'ē* [see SACK 1]: a small bag like a diminutive cushion to contain an odorous substance.

SACHEVEREL, n. *sa-chév'ér-ēl* [after Dr. *Sacheverell*]: an iron door or blower to the mouth of a stove.

SACHEVERELL, *sa-shév'ér-ēl*, HENRY, D.D.: 1674–1724, June 5; b. Marlborough, where his father was rector of St. Peter's Church, noted for his high church principles. The youth was educated at Magdalen College, Oxford; obtained a fellowship, and took the degrees M.A. (1696), B.D. (1707), D.D. (1708). In 1705 he became preacher of St. Saviour's, Southwark; and 1709, he delivered the two sermons in which he attacked with rancor the principles of the Revolution Settlement, asserted the doctrine of non-resistance, and decried the Act of Toleration. The whig govt. of the hour caused his impeachment for high crimes. His trial before the house of lords 1710 resulted in his being found guilty, and suspended from preaching for three years, the obnoxious discourses being ordered to be publicly burned by the hangman. A fury of popular excitement ensued with excesses by the high-church party which gathered to his defense; and S. became for the time the most popular man in the kingdom, so that the general election which followed overthrew the administration. When in 1713 his sentence expired, as a special honor he was appointed by the new house of commons to preach before them the sermon on the anniversary of the Restoration, and was presented to the rectory of St. Andrew's, Holborn. Subsequently he was scarcely heard.

## SACHS.

of. His character was essentially weak, vain, and shallow; his spurious importance was thrust upon him by the accident of foolish activity in a special concurrence of circumstances. See Burton's *Reign of Queen Anne* (1880).

SACHS, *sáks*, HANS: most prolific and most important German poet of his time: 1494, Nov. 5—1576, Jan. 25; b. Nürnberg, where his father was a tailor. At school, he learned the rudiments of Latin, but at no time was he a scholar in the strict sense of the term, though he was certainly widely-informed. About the age of 15, he was sent to learn shoemaking; his love of verse, however, led him to become also a disciple of Leonhard Nennenbeck, weaver and *meistersinger* in his native town. On finishing his apprenticeship, S., as was the custom of craftsmen, made a sort of pilgrimage through Germany, to the verse-making schools or corporations organized by the trade-guilds in the cities, whose members, known as *meistersingers*, had, since the disappearance of the older *Minnesingers* (q.v.), or minstrels of chivalry, become the chief representatives of German poetry. On his return to Nürnberg, he began business as a shoemaker, prospered in his calling; and after a long, cheerful, and happy life, died at the age of 82. S. was twice married—first to Kunegunda Kreutzer, who bore him five sons and two daughters; afterward, in his 66th year, to Barbara Harscher. His grave is still seen in St. John's churchyard, Nürnberg.—S.'s career as an author is divided into two periods. In the first, he shows interest mainly in the occurrences then agitating Germany. It was the epoch of the Reformation of Luther, whose praises he celebrated (1523) in an allegorical tale, *Die Wittenbergisch Nachtigal*, while his poetical fly-sheets (of which about 200 are known) greatly furthered the Prot. cause. In the second period, his poetical activity was turned more to delineation of common life and manners. His poetry is distinguished by its heartiness, good sense, homely genuine morality, and freshness; its clear and healthy humor, and skilful manipulation of material. It is deficient in high imagination and brilliant fancy, and contains large tracts of prosaic, insipid verse. S.'s best productions are his *Schwänke*, or Merry Tales, whose humor is sometimes unsurpassable. MSS. copies of S.'s poems—some in his own handwriting—are in the libraries at Zwickau, Dresden, Leipzig, and elsewhere. When S. had reached the 52d year of his career as a poet, he had written 34 vols., containing more than 6,200 pieces, among which were 4,275 *meistersänge* (of little value), 208 comedies and tragedies, about 1,700 merry tales, secular and religious dialogues, proverbs, and fables; 7 prose dialogues, and 73 songs, secular and devotional. The first ed. of his works was pub. Augsburg 1558; but the best is that of Willer (5 folio vols. 1570–79); a quarto edition, the *Kemptener*, appeared 1612–17, repub. Augsburg 1712. After the middle of the 17th c. S.'s poems were neglected, but were recalled to favor by Goethe's pleasant poem, *Hans Sachs, Erklärung eines alten Holzschnitts vorstellend Hans Sachs's poetische Sendung* (1776).

## SACK—SACKET.

**SACK**, n. *säk* [AS. *sacc*; L. *soccus*; Gr. *sakkos*; Heb. *sak*, a bag]: large bag of coarse hempen cloth or canvas. In Britain, the term sack is used as a measure of about 4 bushels; 112 lb. of coals; 280 lbs. of grain, meal, or flour (2 corn-sacks being equal to one quarter of grain); 364 lbs. of wool in Eng. Sack was the name also of a rude coarse cloak of our ancestors, and now of a loose upper garment. **SACK'FUL**, n. *fūl*, as much as a sack will hold. **SACK'ING**, or **SACK'CLOTH**, n. the coarse cloth of which sacks or bags are made. **SACK'CLOTH**, n. *-klōth* [*sack*, and *cloth*]: in *Scrip.*, coarse rough cloth worn for mortification, or as a mark of mourning or distress.

**SACK**, v. *säk* [F. *saccager*, to sack a town, so called from the use of a sack in removing plunder—from L. *soccus*, a sack or bag: Dut. *sacken*, to put up in sacks, to plunder]: to plunder or pillage, as a town or city after taking it by storm; to devastate: N. the pillage or plunder of a town or city, as by soldiery; devastation; booty or spoil. **SACK'ING**, imp. **SACKED**, pp. *säkt*. **SACK'AGE**, n. *-āj*, the act of storming and plundering a place. **SACK'ER**, n. *-ēr*, one who sacks. To **GIVE THE SACK**, *familiarly*, to dismiss from employment—that is, to send off bag and baggage.

**SACK**, n. *säk* [OE. *seck*, sack—from L. *siccus*, dry: Fr. *sec*; Sp. *seco*, dry]: name in common use in the time of Shakespeare, and occurring till the middle of the 18th c., denoting a kind of wine. The exact nature of this famous wine, the favorite beverage of Falstaff, and the origin of the name, have been much discussed. Sack or seek seems simply an English disguise of the Spanish *seco* (Fr. *sec*), applied to wines of the sherry genus, as distinguished from the sweet wines; a term which we now translate by ‘dry.’ **SACK-POSSET**, a posset made of sack-wine, milk, eggs, etc.

**SACKBUT**, n. *säk'büt* [F. *saquebute*, a sackbut—from Sp. *sacabuche*, a sackbut, the tube of a pump—from *sacar*, to draw; *buche*, the stomach—as if the breath, in using the instrument, were drawn up from the stomach: Sp. *sacar*, to draw: OF. *sacquer*—from L. *soccus*, a bag]: name of the trombone when introduced into England; a kind of trumpet drawn out or shortened by means of sliders, formerly used as a bass in concerts: in *Scrip.*, supposed by some to be a kind of harp or lyre.

**SACKCLOTH**, **SACKING**: see under **SACK** 1.

**SACK-DOUDLE**, v. *säk-dö'dl* [Ger. *dudel-sack*, a bag-pipe]: to play on the bagpipe.

**SACKET**, *säk'ēt*, **DELOS BENNET**: soldier: 1822, Apr. 14—1885, Mar. 8; b. Cape Vincent, N. Y. He graduated from West Point 1845, was brevetted 1st lieut. for services in the Mexican war, was instructor at West Point 1850–55, and in the latter year was promoted capt. of cavalry. He served on frontier duty at various points; in the civil war was staff-officer in the army of the Potomac, served on the board to organize invalid corps, and was inspector of various departments. He was brevetted brig.gen. and maj.-gen. 1865, and, with the rank of brig.gen., succeeded Gen. Marcy 1881 as senior inspector-gen. U. S. army.

## SACKETTS HARBOR—SACO.

**SACK'ETTS HARBOR:** village and port in N. Y., on the s. shore of Black River Bay, 8 m. e. of Lake Ontario, 170 m. w.n.w. of Albany; site of a now long-disused navy-yard, barracks, mills, etc. In the war of 1812, it was an important port, where the frigate *Superior*, 66 guns, was built in 80 days, and the *Madison* in 45 days, from timber standing in the forest. A man-of-war of 3,200 tons, begun before the treaty of disarmament, was left upon the stocks. The town has declined. Pop. (1900) 1,266.

**SACKVILLE**, *säk'vil*, THOMAS, Earl of Dorset: English poet and statesman: 1536–1608, Apr. 19; b. Buckhurst, Sussex; only son of Sir Richard S. He studied at Oxford and Cambridge, where he acquired reputation as a poet both in Latin and in English, and afterward became a student of the Inner Temple. While a member of this soc., he wrote, with Thomas Norton, a blank-verse tragedy, *Ferrex and Porrex* (afterward called *Gorboduc*), which was performed before Queen Elizabeth 1561–2. This work, whose plot is founded on a British legend, is the earliest tragedy in the English language. It is molded to some extent on the classic drama, the incidents being moralized at intervals by a chorus. It has no dramatic life or energy, but the style is pure and stately, evincing eloquence and power of thought. Among S.'s other productions (first pub. 1563) is the *Induction*; a noble poem, uniting, as Hallam says, ‘the school of Chaucer and Lydgate to the *Fairy Queen*,’ and almost rivalling the latter in the magnificence and dignity of its allegoric personifications. The influence of Dante is very perceptible. S. abandoned literature, and entered public life; was created Lord Buckhurst, became a favorite with the queen, who employed him in foreign diplomacy, and on the death of Burleigh, he succeeded him in his office of lord high treasurer (equivalent to prime minister in those days). On the accession of King James, his fidelity and sagacity caused renewal of his patent of office for life; and in the following year, he was created Earl of Dorset. S. was buried in Westminster Abbey. His works were edited by the Rev. Sackville West, in Smith's *Library of Old Authors* (Lond. 1859).

**SACO**, *saw'kō*: city in York co., Me.; on the Saco river 6 m. from its mouth, and on the Boston and Maine railroad; 14 m. w.s.w. of Portland. The river is navigable from S. to the ocean about 9 months in the year, and having a fall of 40–50 ft., affords the city excellent water-power. The city is connected with Biddeford, from which it was set off 1762, by a bridge; contains 10 churches, the Saco athenæum, high and graded schools, public library, 2 national banks (cap. \$200,000), 2 savings banks, and 1 weekly newspaper; and has manufactures of cotton goods, machinery, lumber, and boots and shoes. It received a city charter 1867. Near S. is the Old Orchard seaside resort, noted alike for its summer attractions and for the Meth. Episc. camp-meeting grounds along its beach.—Pop. (1880) 6,389; (1890) 6,075; (1900) 6,122.

## SACO—SACRAMENT.

**SA'CO RIVER:** stream rising in the White Mountains of N. H., flowing s.e. through the s.w. portion of Maine, through Saco Bay, to the Atlantic Ocean. Its course of 160 m. is almost a continuous succession of falls, the last being but 4 m. from its mouth, affording water-power to numerous factories.

**SACQUE**, n. *säk*: a kind of loose gown or upper garment worn by ladies in the 17th and 18th centuries and introduced from France into England in the reign of Charles II. It hung loosely over the back and shoulders. Now also spelled sack.

**SACRAL:** see under **SACRUM**.

**SACRAMENT**, n. *säk'ru-mënt* [L. *sacramen'tum*, a solemn obligation or engagement, an oath—from *sacer*, sacred; It. *sacramento*; F. *sacrement*]: ecclesiastical name for a solemn religious rite instituted by Christ to be observed by His followers; the Lord's Supper, or the Eucharist; baptism: ‘an outward and visible sign of an inward and spiritual grace’; in the *Rom. Cath.* and *Gr. Chhs.*, baptism, the Eucharist, marriage, penance, confirmation, orders, and extreme unction, are called sacraments. **SAC'RAMENT'AL**, a. *-mënt'al*, pertaining to a sacrament; constituting a sacrament. **SAC'RAMENT ALLY**, ad. *-lì*. **SACRAMENTALISM** [sometimes **SACRAMENTARIANISM** (q.v.)]: doctrine that the sacraments impart grace by an inherent virtue given them from God, and not merely through the recipient's faith. **SACRAMENTALIST**, one who holds the sacramental view. **SAC'RAMENT'ALS**, n. plu. *-alz*, rites which are of a sacramental character, but are not sacraments. **SAC'RAMENTA'RIAN**, n. *-ä'rë-an*, one who considers the sacraments mere outward signs, used also in the opposite sense, to denote one who holds to Sacramentalism (q.v.); see **SACRAMENTARIAN**, below: **ADJ**, pertaining to the sacraments. **SAC'RAMENT'ARY**, n. *-är-i-ä*, an anc. book of the Church of Rome, containing the prayers and ceremonies used in the celebration of the Eucharist: **ADJ**. pertaining to the Eucharist.

**SAC'RAMENT** (Lat. *sacramentum*, *mysterium*, Gr. *mysterion*): name given by theological writers and in common usage (though not so applied in Scripture) to certain religious rites, whose number as well as effects are the subject of much controversy between various bodies of Christians. The word *sacramentum*, in primitive classical usage, meant either the oath taken by soldiers on their first enrolment, or the sum of money deposited by suitors entering on a cause, and forfeited ‘to sacred uses’ by the unsuccessful party; and the corresponding classical Greek word *mysterion* meant not merely the secret religious ceremonies (mysteries) practiced in the worship of certain gods, but also any revealed secret. At a very early Period of the Christian Church, both the Latin word and its Greek equivalent came to be applied specially to certain rites of the Christian ceremonial, and chiefly (as is commonly held by Protestants, exclusively) to those of baptism and the Lord's Supper. For our purposes, it will be enough to state concisely the views of the several religious communities on this

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much controverted subject, which formed one of the earliest grounds of division between the Roman Church and the Reformers of the 16th century.

In the Roman Church, it is held that there are seven sacraments: Baptism, Confirmation, the Eucharist, Penance, Extreme Unction, Holy Orders, and Matrimony. For the special teaching of Rom. Catholics on each of these rites, see the several titles; but there are certain general principles regarding them all, on which the Rom. Cath. doctrine differs widely from that of the Reformed. Rom. Catholics define a S. to be a visible or sensible sign permanently instituted by God, and conveying real interior grace to the recipient, and they teach that all sacraments contain within themselves, as instruments—and when received with proper dispositions, produce—such grace by the virtue imparted to them by God, and not merely through the faith of the recipient; though they hold that proper dispositions on the part of the recipient, as sorrow for sin, love of God, pious resolves, etc., are conditions indispensable for the efficacy of the sacramental rite: see *OPUS OPERATUM*. They divide the sacraments into two classes, ‘sacraments of the living,’ and ‘sacraments of the dead.’ The first class comprises the Eucharist, Confirmation, Holy Orders, and Matrimony—all which sacraments can be received fruitfully by persons only in a state of grace or justification. The second class includes Baptism, Penance, and Extreme Unction, whose special purpose is to remit sin; and which therefore can be received by persons in a state of sin, but penitent for that sin, and resolved to amend their lives. Of three of the sacraments, Baptism, Confirmation, and Holy Orders, it is held that they imprint a ‘character,’ and therefore that they can be received only once. The others may be repeatedly received, but under conditions (see each separate title). Two things are held to enter into the constitution of the S.—viz., the ‘matter’ and the ‘form.’ By the ‘matter’ is meant the material element or the physical action whereby that element is applied to the recipient; as water in baptism, oil in extreme unction, and in both the act of washing or of anointing. By the ‘form’ is understood the form of words employed by the minister in communicating to the recipient the external rite in which the sacramental act consists. The minister of a S. is the person supposed to be divinely authorized to impart it. The minister is different for different sacraments (see the titles).

The Reformed Churches have for the most part discarded these views. By the majority of them, the sacraments are held to be ceremonial observances, partly designed as a solemn act, by which each individual is admitted to membership, or desires to make solemn profession thereof; partly intended to stimulate the faith and excite the fervor and the pious dispositions of the recipient, to which dispositions alone, as recipient of Divine grace, all the interior effects are to be ascribed. As to the number of rites called by the name, almost all Protestants agree in restricting it to two—Baptism and the Lord’s Supper; though some of the rites which Rom. Catholics regard as

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sacramental are retained by some Prot. communities as religious observances. In the English Church, however, there has always been a school in which opinion tending toward the Rom. Cath. view has prevailed. Not only has this school ascribed to the two rites of Baptism and the Eucharist or Lord's Supper (q.v.) the power of producing an interior grace (which in Baptism is called regeneration); but many of them have been willing to call the other rites, especially confirmation, penance, and holy orders, by the name of S., though of a secondary character, and not 'generally necessary to salvation': see TRACTARIANISM.

**SACRAMENTARIAN:** name given in the 16th c. to the party (Calvinists, Zwinglians) among the Reformers who separated from Luther on the doctrine of the Eucharist; afterward applied similarly in the Anglican Church. [The word in later controversies has been applied in a meaning almost the reverse (see SACRAMENTALISM)]. Luther (q.v.) taught the doctrine of the real presence of the body and blood of Christ with the bread and wine (see LORD'S SUPPER: REAL PRESENCE). The first of his followers who called this doctrine in question was Andrew Carlstadt; and notwithstanding the protest of his leader, Carlstadt had many followers, the most active of whom were Capito and Bucer. The party became so considerable, that in the diet of Augsburg they claimed to present a special confession distinct from that put forward by the general body. The sacramentarian confession is known in history by the name Tetrapolitan Confession—from the four cities, Strasburg, Constance, Lindau, and Memmingen. The Tetrapolitan Confession rejects the doctrine of a corporeal presence, and though it admits a special spiritual presence of Christ which the devout soul can feel and enjoy, it excludes all idea of a physical presence of Christ's body. Simultaneously with this German movement, yet independent of it, was that of the Swiss reformer Zwingli, whose doctrine on the Eucharist was identical with that of Carlstadt, and who himself presented a private confession of faith to the Augsburg diet, in which this doctrine is embodied. The four cities named above continued for many years to adhere to this confession presented to the diet of Augsburg in their name; but eventually they accepted the so-called Confession of Augsburg, and were merged in the general body of Lutherans. On the contrary, the article of Zwingli on the Eucharist was in substance embodied in the confession of the Helvetic Church.

**SACRAMENTO**, *säk'-ra-mĕn'-tō*: city, port of entry, cap. of Sacramento co., Cal.; on Sacramento and American rivers, and on the Central Pacific and the Southern Pacific railroads; 86 m. n.e. of San Francisco; 9 sq. m. It is on a beautiful plain on the e. bank of the Sacramento river, directly s. of the mouth of the American; is laid out regularly with streets intersecting at right angles; is protected against floods, from which it suffered 1849 and 61, by substantial levees constructed 1862 (cost \$200,000); owns its water-works system, operated from the Sacramento river (cost \$190,000); and is lighted with gas and electric-

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ity. The trade with the n. portion of the state, facilitated by the numerous railroads in the Central and Southern Pacific systems, is large and important; and trade with the s. part also is promoted by several lines of steamboats and sailing vessels, navigating the Sacramento for more than 100 m. above the city, and proceeding thence to San Francisco. There is much in S. that is suggestive of tropical life; abundant shade trees, beautiful lawns and flower-beds in the residence portion, orange trees, palms, ornamental plants, and grapes in large variety. The public buildings include the new state Capitol (cost \$2,500,000), in a handsome park of 50 acres; U. S. Post-office and Court-house (\$100,000); Co. Court-house, formerly the state capitol (\$200,000); Crocker Art Gallery, 3-story brick and iron building, cost more than \$100,000, and contains grand collections of minerals and paintings; Hall of Records (brick and iron, \$50,000); County Hospital, pavilion plan (\$75,-000); State Library; Free Public Library; State Printing House; Art School; and public high school. Other buildings of note are the gov.'s mansion; Masonic Temple; Odd Fellows' Hall; exhibition building of the State Agricultural Soc.; and the Rom. Cath. Cathedral (cost \$250,000). The capitol and several other public buildings are in the State Capitol park, a charming preserve; another delightful park is the City Plaza, containing 2½ acres of the handsomest lawn in the country, bordered with eucalyptus trees. In 1902 the net public debt was \$30,000; assessed valuation of all taxable property \$17,500,000; personal \$11,500,000; tax rate \$1.23 on \$100. In 1902 there were 1 national bank (cap. \$500,000); 2 state banks (cap. \$500,000); and 1 savings bank (cap. \$225,500); and 2 daily, 5 weekly, and 3 monthly periodicals.

The site of S. was included in the New Helvetia grant of the Mexican govt. to John A. Sutter (q.v.), who built a fort (1839) to protect his grant and his lumbermen. John Marshall (q.v.), leaving this fort to build a saw-mill for Sutter, on the American river, made the memorable discovery of the presence of gold. A town, laid out around the fort 1848, was incorporated 1850, made the state capital 1854, had the city and co. govts. consolidated 1858, and received a separate charter as a city 1863. The first railroad opened in Cal. (1856), extended from S. into El Dorado co. Fire did large damage 1852. Nov. 2, and 1854, July 13.—Pop. (1880) 21,420; (1890) 26,386; (1900) 29,282.

**SACRAMENTO RIVER:** large river in Cal., which, with the San Joaquin, drains the Great Central Valley. It rises in the n.e. part of the state, in the Sierra Nevada, by North and South Forks, where, during its s.w. course of 200 m., it is called Pitt river and Upper S.; thence it flows nearly due s., receiving numerous branches from the Sierra Nevada on the e. and the Coast Range of mountains on the w., until it unites with the river San Joaquin, and flows w. through San Pablo and San Francisco bays to the Pacific Ocean. It is navigable to Sacramento, 50 m. from San Pablo Bay, and for small vessels 150 m. further, its entire length being about 500 miles.

## SACRARIUM—SACRED MUSIC.

SACRARIUM, n. *sa-krā'ri-ūm* [L. *sacrārium*, a shrine—from *sacer*, sacred]: among the *anc. Romans*, a domestic chapel or apartment in a house, devoted to some particular divinity; the adytum of a temple; that part of a church where the altar or communion table is situated.

SACRED, a. *sā'krēd* [OE. *sacre*, to set apart, to consecrate; *sacred*, set apart: F. *sacré*, sacred—from *sacer*, to consecrate, to swear—from L. *sacer*, sacred]: pertaining to God, or to His worship; pertaining to religion or religious uses; not profane; consecrated; dedicated; inviolable. SA'CREDLY, ad. *-lī*. SA'CREDNESS, n. *-nēs*, the state of being sacred; the state of being consecrated to God, or to His worship; holiness. SACRED COLLEGE, n. the College of Cardinals at Rome. SACRED ISLE, a name given to Ireland from the many saints who once dwelt or taught there. SACRED-PLACE, n. in *law*, the place where a person is buried.—SYN. of ‘sacred’: holy; divine; venerable; religious; theological; reverend; devoted; hallowed; inviolable.

SACRED HEART, *sā'krēd hārt*, LADIES OF THE: Roman Catholic religious order for promoting education of young ladies. It was organized at Paris, 1800, Nov. 21, under direction of Father Varin, by Madeleine S. L. Barat and Octavie Bailly. The school then established prospered, and within a few years branches were established in various countries; the first in the United States being opened at St. Louis about 1817. The members consecrate themselves to the Heart of Jesus, take vows of obedience and poverty, and though not connected with the Jesuits, have a similar organization.

SACRED HEART OF JESUS, FEAST OF: modern festival of the Rom. Cath. Church. Its origin is traced to a vision recorded of a French nun, of the order of the Visitation, named Mary Margaret Alacoque, who lived at Paray la Moniale, Burgundy, in the latter half of the 17th c. This devotion was at length approved by Pope Clement XII. 1732 and 36, and by Clement XIII. 1765. The festival is on the Friday after the octave of Corpus Christi. During recent years a fresh impulse has been given to the devotion, and 1873 numerous bodies of pilgrims resorted to Paray la Moniale; and several dioceses and countries were dedicated to the Sacred Heart by special and solemn ceremonial. The confraternities of the Sacred Heart are very numerous.

SACRED MUSIC: music used in or appropriate to Christian worship or other parts of Divine service; or devoted to illustration of some religious theme. Music has, from very early times, been connected with religious rites. It entered into the worship of the Jews, and both sacred and profane history tell us that, in the primitive Christian Church, the service consisted partly of music. Little is known regarding the kind of music used by the early Christian converts: it has been supposed to have been partly Greek, with intermixture of Hebrew melody. As early as the time of Ignatius, disciple of the apostle John, the Psalms of David were sung *antiphonally*, as practiced to

## SACRED MUSIC.

the present day—i.e., by two choirs responding to each other, which had doubtless been the practice among the Jews. At first, the whole congregation, clergy and laity, joined in the psalm; but difficulties and abuses having arisen from the growing neglect of musical culture, the Council of Laodicea, 363, found it necessary, for decency and order in worship, to prohibit the laity from singing in church except in certain very simple and popular chants. From that period till the Reformation, the music of the church was almost entirely surrendered to the clergy and trained musicians. See PSALMODY.

The first name of importance in the history of the music of the Western Church is St. Ambrose (q.v.), whose musical service (see AMBROSIAN CHANT) was reformed by Pope Gregory (see GREGORIAN CHANT). The use of the organ in churches dates from about the 9th c., and some centuries later, Counterpoint (q.v.) was introduced to a limited extent into the music. Among the corruptions which followed it, some are of a nature whose very mention startles us. Not merely were popular melodies of a secular nature often taken into church music, but the secular words were actually transplanted into the religious compositions, being habitually given out by the tenor voice, while the actual solemn words of the church service were being sung by soprano, alto, and bass. Papal bulls having vainly combated this abuse, it was brought under the cognizance first of the Council of Basel, then of that of Trent. The Council of Trent prohibited the performance of any mass or motet of which profane words formed a part, also of music founded on secular themes. Some compositions of Palestrina were singled out for praise, and their author was intrusted with the task of remodelling this part of worship. He composed three masses on the reformed principle, one of which, known as the *Missa papae Marcelli* (so called as being a tribute of gratitude to the memory of that pontiff), may be regarded as having saved music to the church, by establishing a type far higher than anything that had preceded it, and still revered by all lovers of music. The *mass* (including the *offertory* and *gradual*) has always continued an important part of the sacred vocal music of the Rom. Cath. Church, and affords large scope for the higher qualities of musical composition.

Various new types of music sprang up in the different Prot. churches after the Reformation. The solemn and measured *Chorale* (q.v.), or melody to which psalms or hymns are sung in unison, though generally associated with the Luthern Church of Germany, was really handed down from a very early period. Psalmody in its modern sense may be considered to have originated in the 16th c., when Clement Marot, court poet of Francis I., translated 52 of the Psalms into French verse. Psalm-singing was at first a fashionable amusement of the gay courtiers of Francis; but being taken up by the Reformers, was soon discredited by the Rom. Catholics, and deemed a badge of Protestantism. See PSALMODY: HYMN,

## SACRED MUSIC.

In the full choral service of the Church of England, as performed in cathedrals and collegiate churches, the greater part of the prayers and the litany are *intoned* or read in monotone (see INTONING), the monotone being occasionally varied by harmony at the close. The Psalms and *Gloria Patri* are chanted with accompaniment of the organ, as are also the various canticles; the latter, however, particularly the *Te Deum*, being often sung to more elaborate rhythmical music, called *services*. The form of the Anglican chant now used for the Psalms seems to have been invented by Taliis. In the single chant, each verse is sung to the same music; in the double chant, the whole occupies two verses. The antiphonal chanting, with the Anglican double chant, has sometimes been objected to as repugnant to the proper expression of the words, as coupling verses between which there is a full stop in the sense, and as placing a full stop when the sense runs on; and among the high-church party there has been a disposition to recur to the Gregorian chants, whose indefinite musical expression, absence of rhythm, and uncertain accent, give them a power of bending to the requirements of the words. The Gregorian chant has, however, not made its way into the service of any of the English cathedrals. The *anthem* forms a part of the complete musical service. It is somewhat similar in character to the motet of the Rom. Cath. and Luth. churches; a sacred cantata, in which the words are from the Psalms or other portions of Scripture; and the music is for solo, parts, or chorus, or a mixture of the three.

In the Presb. churches of Scotland, psalmody, until recently, formed almost the entire music; but hymns also are now in general use. Hymns predominate among the English dissenters. Some years ago, church music in Scotland had fallen to the lowest state of degradation; but efforts have lately been made, with some success, to raise its character; and even organs, proscribed by the early Scottish reformers, and ever since in disfavor, have begun to be introduced; and chanting has been admitted into some Presb. churches. In the United States, hymns in rhyme and meter have formed the chief musical service of non-prelatical churches; but organs were early introduced into the Congl. churches of New England; and chanting is now taking a recognized place in nearly all denominations.

Of sacred musical compositions not intended to form part of the service of the church, most important is the *Oratorio* (q.v.), a composition either entirely dramatic, or combining the drama and epic, where the text is illustrative of some religious subject, and the music consists of recitations, airs, part-songs, and choruses, accompanied by orchestra and organ.

## SACRIFICE.

**SACRIFICE**, n. *sāk'ri-fīs* or *-fīz* [L. *sacrificium*, a sacrifice—from *sacer*, sacred; *facio*, I make]: act of offering, and often of burning a victim on an altar in honor of God, or of a heathen deity; the thing offered in sacrifice; loss made or incurred to effect some object, or to oblige another (see below): V. *fīz* or *-fīs*, to offer to God in worship, or to a heathen deity, a slain victim on an altar; to destroy or give up for the sake of something else. **SAC'RIFICING**, imp. **SAC'RIFICED**, pp. *-fīst*. **SAC'RIFICER**, n. *-fī-sēr*. **SAC'RIFI'CIAL**, a. *-fish'āl*, performing sacrifices; pertaining to sacrifice; including or consisting in sacrifice. **SAC'RIFI'CALLY**, ad. *-li*. **SACRIFIC**, a. *sa-krif'ik*, or **SACRIF'ICAL**, a. *-i-kul*, employed in sacrifice. **SACRIF'ICANT**, n. *-kant*, one who offers a sacrifice.

**SAC'RIFICE**: important element of divine worship, common to all nations of antiquity, therefore traced by many writers to a primeval revelation. The powers of nature, palpable in their effects for good and evil, occasioned in man, even in his rudest stage, fear or gratitude toward the unseen beings by whom he conceived those powers actuated. The next natural step was the outward manifestation of these feelings by a token which bespoke either thankfulness or conciliation. The supreme numina being conceived merely as superior men with exaggerated human wants, the means taken to gratify them were adapted to this conception. The best and first fruits of the soil, the most immaculate animals of the flock, were offered to the gods, that they might either partake of them or at least enjoy the sweet smell arising from the altar on which they were burned. The more the divine favor was sought for some special purpose, the more precious became the gift; and from the simple and childlike notion of establishing a certain kindly and permanent relation between the invisible powers and man, by the yielding up on the part of the latter a certain more or less precious portion of what the former had given him, there grew up monstrosities too horrible for belief did they not to some extent still exist. The undeveloped childlike instinct which offered the Deity a flower, a blooming bough, a golden fruit, was degraded into a superstition, ending in the theory that the divine revenge was to be gratified, the divine vanity flattered, and the deity made as generally pleased as could be by holocausts of human beings, friends or foes—nay, the dearer the being, the more impressive the self-abnegation, and the more the god must smile upon the donor. The Moloch worship—the mother placing her babe in the arms of the monstrous idol, and seeing it slowly burned—seems to exhaust all the horrors of human ingenuity.

In the most ancient and hallowed record of humanity, the Old Testament, we find the custom of S. on its early pages, and spoken of as a rite already established. S. is the cause of the first murder on record. Abraham is prevented by a voice from heaven from the slaughter of Isaac, to which he had deemed himself called by Jehovah; all the patriarchs, in fact, sacrifice, either independently or in ratification of a covenant; and the exodus itself was

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brought to pass under the pretext of the people having to offer up their wonted S. in the desert.

According to the highest ancient authorities, both Jewish and Christian—of whom we mention only Maimonides and Ephraem Syrus—the Mosaic sacrifices were neither more nor less than a kind of divine concession to reach and educate the sensual nature of an uncultivated people, full of Egyptian reminiscences on the one hand, and surrounded by Canaanitish modes of worship on the other. It was, as Ephraem Syrus says, only at a very late period that Moses, by the command of God, in whose eyes the rites of priests and sacrifices have in themselves but little value, prescribed these observances to his people, on account of their weakness and hardness of heart—lest they might despise a ‘naked’ religion, and attach themselves to false gods, whose dazzling cultus surrounded them on all sides. In corroboration of this view, the prophets are cited, who repeatedly inveigh against S. as such, when, according to their view, the people were educated enough to do without this symbol and to worship God in truth and in spirit. (Comp. Jer. vii. 22; I Sam. xv. 22; Ps. l. 8-10; li. 18, 19; Is. i. 11, etc.) But the institution being deemed necessary for the time, legislation had to circumscribe it rigorously, making it as little hurtful as possible. Ceremonies contrary to morals and decency, such as were practiced in the temples of Canaan, the abominations of phallic rites, the sacrifices of virginity, and, finally, the offering up of human beings, were punished with instant death by the Mosaic law.

How the principal modes of sacrificial offerings, such as they had naturally developed, nearly alike everywhere throughout antiquity, and as they had obtained in the pre-Mosaic times among the Hebrews, were adopted in the Mosaic legislation, and adapted to its exalted religious character, we can only indicate here in briefest outlines. These pre-Mosaic sacrifices were chiefly of three kinds: first, the ‘propitiatory,’ i.e., an offering enjoyed by the Deity in any form that would be grateful to him, conciliate him, procure his aid and blessing in times of need or for some special undertaking; and would further obtain his forgiveness, if something had been done unwittingly that might have offended him. This kind of S., whether bloody or unbloody (e.g., harvest sacrifice), appears to have been fully burned (*Olah*). The second kind partook more of the nature of sacrificial meals, in which both the divinity, the priest, the man who offered the S., together with his friends, took part. Only the parts deemed choicest were burned upon the altar; the priests received some other parts, and the rest formed the grateful sacrificial repast (*Sebach Shelamim*). The last kind was the expiatory S., intended as an equivalent for some deadly crime, which either was not punishable by existing laws, or had been committed under circumstances that would not have warranted capital punishment. From the idea that the blood of the murderer was necessary for ‘the cleansing of the blood that is shed’ (cf. Num. xxv. 33),

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sprang the notion—so it appears—that there was expiatory power in the blood itself; and that further, the blood of an animal was a fitting representative of, and equivalent for that of the human criminal, who had only to transfer, as it were, his sin to the animal by placing his hands upon its head, and perhaps using a formula to that effect. The flesh of this animal was not deemed fit for the altar, and was probably burned at some other place (*Chattath Asham*). The Mosaic legislation finding such general elements ready, proceeded eclectically. They were partly embodied with considerable alterations, partly rejected unconditionally. The notion of the expiatory power of the blood was retained—with this modification, that the poor were allowed to use flour instead of meat for their sin-offerings. But the principal alterations introduced were the abolition of all polytheistic rites from the sacrificial service, of all the immoral, obscene, and horrible ceremonies connected with the heathen practice, and finally, the totally different definition and limits given to the ‘sin-offering.’ While formerly, everything could be expiated by a S., henceforth, only unpremeditated sin could by this means be effaced; while there was no expiation for any premeditated crime; the law simply took its course in that case. One of the most characteristic exceptions, however, was that in favor of those who had denied the possession of some pledged article, or who had wilfully cheated or robbed their neighbors. If they were eager to make voluntary and ample restitution, ‘the door of repentance was opened to them,’ and they were allowed to make public expiation through sacrifice. Further, many things till then permitted were prohibited, and thus fell under the denomination of ‘sin;’ and certain purifications—beneficial in themselves—were connected with the expiatory S., and their practice thus strongly enforced. This extension of the notion of ‘sin-offering’ rendered a subdivision of it necessary; the more venial, or rather unconscious, transgressions, were, in the ritual, treated differently from those less pardonable.

While Mosaism thus seemed, in its adoption of the rite of S., to make one of the most important concessions to heathenism, this very rite was, on the other hand, calculated to attract the early Hebrews to the worship of Jehovah, while weaning them from the horrible pollutions connected with S. among the Canaanites. But more; during the primary stages of the people’s existence, by inculcating observances at once hygienic and symbolic of purity and holiness, it served as a powerful means of education and culture. In order, however, that these beneficial consequences premeditated by the lawgiver should not be frustrated, it was necessary, above all things, to keep the strictest possible supervision over it; and this was best established by the legal transfer of the whole sacrificial service to one single spot of the land—finally, the Temple at Jerusalem. The ‘heights’ and their ‘heathen abominations’ were thus theoretically abolished, and the S. that only at one central point could be said to be offered up for the ‘whole community of Israel,’

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went far, under these circumstances, to awaken and to strengthen a common spirit of nationality and patriotism, which was further aided by the periodical pilgrimages. For details of the Jewish sacrifices, see the Old Test. generally.

As to the different opinions held by Jewish and Christian authorities regarding S., when offered up in expiation of a sin, either by the people or by individuals, suffice it here to mention that they are divided between the various notions of the offering being either a present to the offended deity, a civil punishment (*mulcta*), or, finally, a kind of substitute for the sinners themselves. The latter is the view held by many of the rabbinical writers as well as church Fathers. The life (*Nephesh*) of the animal or its blood (Lev. xvii. 11) was distinctly said to make 'the atonement for the soul.' This notion of a representative victim is one that belonged to the whole ancient world, and often finds expression in the Old Test. The sacrifice of the covenant (Jer. xxxiv. 18, etc.), the scapegoat (Lev. xvi. 21), and the like, are embodiments of this idea; which by Christian divines is held to have found its acme and final fulfilment in the sacrifice of God Himself, in the person of His Son, only-begotten, the Man, Christ Jesus—uniting in himself the priest, the offerer, and the sacrifice. In fact, the whole institution of sacrifices is held throughout the New Test. and the Fathers, to have been merely typical of this final act, by which the sin of man was expiated. See ATONEMENT: MASS.

The Jewish sacrifices, rejected already by the Essenes, ceased with the downfall of the Temple in Jerusalem: though the Samaritans, who claim to retain exclusively the Mosaic covenant, still continue this rite on Mount Gerizim at the Passover. The orthodox Jews, however, include in the prayers for the restoration of the visible sanctuary on Zion, also that of the restoration of the sacrifices 'in their order and proper rule,' 'of the priests to their service, and the Levites to their songs and hymns,' and each day, Sabbath, or Feast, the S. incumbent upon it is mentioned in the prayers; and on fast-days, especially on the day of atonement, the diminution of bodily substance supposed to arise from the abstinence, the 'fat and blood' may, it is supplicated, be considered by God as tantamount for that of the sacrificial animals, which, through their sins, the people are not now deemed worthy of offering up. The modern (extreme) party of reformed Jews, however, repudiate, together with the literal interpretation of the Messianic prophecies, also that notion of the sacrifices ever being restored.

We can only glance at the sacrificial customs among other nations of antiquity. The same feeling of dependence on supreme, invisible, but ever-present powers, engendered everywhere similar expressions of awe, fear, and gratitude. The gifts proffered differed, according to the degree of culture, the mode of life, and the products of the soil among the different peoples. No less was the significance attached to the gift different in proportion to

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the mental development of those who offered; at one time considered as a present, to be taken and sensually enjoyed, by the Deity, at other times it assumed a higher and purely symbolical aspect, as an expression of repentance, reverence, gratitude. In the same proportion, the gifts themselves varied in their nature and their value. While Mongols and Tartars, Lapps and Negroes, most of the ancient nomad tribes in fact, generally sacrificed the milk and the uneatable parts of the animal only, its bones, horns, skin, etc.; the Greeks and Romans offered frequently thousands of the choicest, most immaculate animals, and the sacrificial vessels were with them, as with the Hebrews, wrought of the most precious metals. Votive offerings—arms, spoil, garments, tools, locks, poems, etc.—customary in the better days of Rome and Greece; and the sacrifice of chastity on the part of maidens and women—the custom chiefly of Babylon, Phœnicia, Cyprus, etc., likewise fall under the denomination of S. in its wider sense. Among the East Indians, Bactrians, Medes, and Persians, the sacrifices consisted of fruits, libations, animals, and the like, and were of many degrees and numbers: among the first-named, the study of the Vedas was reckoned as the first round in the sacrificial ladder. With the Persians (see GUEBRES: PARSEES), the priests at the Daruns S., instituted in honor of Zerdusht, the lawgiver, eat small unleavened cakes, and drink Hom-juice, which is to represent the blood of the prophet: they have sacrifices also for the souls of the deceased. The Buddhists offer flowers and first-fruits only; their animal sacrifices are represented by small animal figures kneaded of dough, offered up on certain occasions. The ‘classical’ peoples had their sacrificial debauches, which succeeded the primeval frugality in their offerings no less than in their lives; but they practiced human sacrifice from their very earliest period to their decadence. Among the Greeks, the legendary tales of the daughters of Erechtheus, and of Iphigeneia in mythical times; the sanctuary of Zeus Laphystius at Halos and at Lyceæa, in Arcadia; the offering up of three Persians by Themistocles before the battle of Salamis, show the generality of the practice. Among the Romans, human sacrifices, in use during the Republic—either enthusiastic voluntary deeds of patriotism, or simply a kind of execution in punishment of a deadly sin—were prohibited in later times by the senate; but both Augustus and Sextus Pompeius committed wholesale murders by way of political S. to the gods. This abomination of slaughtering men in honor of God at stated periods, flourished to an awful extent among our own northern ancestors—Scandinavians and Germans, as well as among Gauls and other Celts. At Upsala, every 9th year, a great S. of expiation was offered up, consisting of 9 human beings and 63 animals. The Danes, in the same manner, held a S. every 9th year, of 99 men, besides horses, dogs, cocks, and other domestic animals (see the EDDAS; Muller, *Sagenbibliothek*; Pertz, *Mon. Germ. Hist.*; *Script. passim*, etc.). The German tribes, even after their conversion to Christianity, con-

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tinued to offer up their prisoners of war as of yore, as the Franks brought their sacrifices both to their ancient gods and to Christ. Any illness, danger, sickness—the slightest inducement, in fact, sufficed to move the Gauls toward a human holocaust, in the fashion of the worshippers of Baal and Moloch. At the death of a man, all his possessions, movable and immovable, including slaves, clients, wives, and all, were offered up to his manes: see SUTTEE. The ancient Mexicans, the negroes, and other wild tribes, were proficient in this sort of wholesale slaughter: the king of Dahomey's practices, and the fruitless remonstrances of the Brit. govt., are a well-known illustration of the firm hold that murder in honor of the Deity has of the human mind. The torments and burnings of multitudes by the Inquisition, and the cruelties and massacres committed on the Jews in the middle ages, in the name of Christ, may perhaps be deemed the offspring of that Moloch or Baal worship which seems an instinct in the superstitious mind, Pagan or Christian.

**SACRILEGE**, n. *săk'ri lëj* [L. *sacrilegium*, sacrilege—from *sacer*, sacred; *legérē*, to gather, take unjustly: It. *sacrilegio*; F. *sacrilège*, sacrilegious]: the profanation of anything, or any place, dedicated to the service of God; popularly, the crime of stealing sacred things, particularly out of churches. **SAC'RILE'GIOUS**, a. -*lëjüs*, violating sacred things; containing sacrilege. **SAC'RILE'GIously**, ad. -*lë*. **SAC'RILE'GIousness**, n. -*nës*, the quality of being sacrilegious. **SAC'RILE'GIST**, n. -*jist*, one guilty of sacrilege.

**SACRING**, a. *să'krîng* [F. *sacrer*, to consecrate—from L. *sacer*, sacred]: in *OE.*, consecrating: N. consecration. **SACRING BELL**, the bell rung at the elevation of the Host in the service of High Mass—also called ‘sanctus bell.’

**SACRIST'**, n. *să'krîst* or *săk'rîst* [Sp. *sacristan*; F. *sacristain*; It. *sagrista*; mid. L. *sacrista*, a sacristan—from L. *sacer*, sacred]: person employed in a cathedral to copy out music for the choir, and to take care of the books; in some cathedrals, a minor canon. **SACRISTAN**, n. *săk'rîs-tan*, one who has charge of the utensils and other movables of the church; one who prepares the graves for the dead, and keeps the church clean—in some Rom. Cath. churches a clerk in minor orders. From this word is the Eng. word *sexton*. **SAC'RISTY**, n. -*tî*, an apartment in a church where the sacred utensils, vestments, etc., are kept—now often called *vestry*.

**SACRO-**, prefix, *să-kro*: of or belonging to the sacrament.

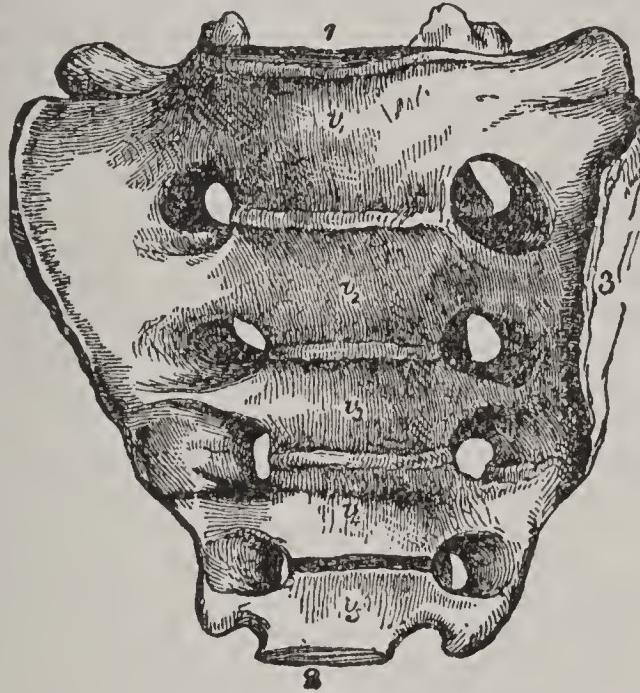
**SACRO BOSCO**, *săk'rô bôs'kô*, JOANNES DE (Eng. JOHN HOLLYWOOD): English mathematician: d. 1244 (or 56). He entered the Univ. of Paris 1221, and afterward became prof. there. S. was one of the first doctors of the middle ages who made use of the astronomical writings of the Arabians. His treatise, *De Sphæra Mundi* (pub. 1472), is merely a paraphrase of a portion of Ptolemy's *Almagest*. No book had greater renown as a manual among the scholastics: it passed through more than 20 editions—some

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say 65--with as many commentaries. Other works of S. are *De Computo Ecclesiastico* and *De Algorithmo*, one of the first works on arithmetic in which the numerical notation of the Arabs is employed. About 1232 he pointed out the growing error of the Julian calendar, suggesting nearly the same correction as that applied 350 years later under Pope Gregory XIII.—He died in Paris.

**SACROSANCT**, a. *säk'rō-süngt* [L. *sacrosanctus*--from *sacer*, sacred, and *sanctus*, holy]: sacred and inviolable.

**SACRUM**, or **OS SACRUM**, n. *ös sū'krūm* [L. *os*, a bone; *sacrum*, sacred]: in *anat.*, the part of the vertebral column connected with the pelvis. **SACRAL**, a. *sū'kral*, relating to the sacrum.—The *Sacrum* is a triangular bone at the lower part of the vertebral column (of which it is a continuation), and wedged between the two innominate bones to form the keystone to the pelvic arch. It is readily seen to consist of five vertebræ with their bodies and processes, all consolidated into a single bone. Its anterior surface (as



Sacrum.

1, Surface articulating with last lumbar vertebra; 2, surface articulating with coccyx; 3, surface articulating with the os innominatum; *v<sub>1</sub>*, *v<sub>2</sub>*, *v<sub>3</sub>*, *v<sub>4</sub>*, *v<sub>5</sub>*, the bodies of the five sacral vertebræ.

shown in the figure) is concave, not only from above downward, but also from side to side. The posterior surface is convex, and presents, in the middle vertical line, a crest, formed by the fusion of the spines of the vertebræ, of which the bone is composed. The last sacral vertebra has, however, no spine, and the termination of the vertebral canal is here very slightly protected.

Various reasons have been assigned for the peculiar name given from very olden times to this bone. One of the reasons assigned is, that it was the part used in sacrifices. Another is based on the tenet of the Jewish rabbins, that this part of the skeleton, which they called ‘*luz*,’ resisted decay, and became the germ from which the body would be raised in the last day.

## SACS AND FOXES—SACY.

SACS AND FOXES, *sawks and fōks'ēz*: associated tribes of the great Algonquin sub-race of N. Amer. aborigines. Driven from lower Lake Huron by the Iroquois, the Sacs (or Sauks) went to the region of Green Bay, where they were joined by the Foxes, and afterward the two tribes inhabited both sides of the Mississippi river from Wis. to Mo. In the old French war they were allies of the English, and attacked Detroit 1712; and they aided the British in the Amer. revolution, and again in the war of 1812, assaulting Sandusky. A part made war under Black Hawk 1831, for possession of the Rock river region. By successive removals, a part are now the S. and F. of Missouri numbering 77, on the Kan. reservation; others, the S. and F. of Mississippi, 515, at the S. and F. agency in Oklahoma; while another portion, now numbering 397, are near Tama, Io., whither nearly as many, escaping from an inter-tribal war, returned 1857, buying over 1,000 acres, and, by vote of congress, were permitted to remain and receive there an annuity of \$13,000 to \$15,000. They have made little progress toward civilization. Keokuk was a great Sac chief, peaceful with his band during the Black Hawk war.

SACY, *sā-sé'*, ANTOINE ISAAC, Baron SILVESTRE DE: most eminent of French orientalists: 1758, Sep 21—1838, Feb. 21; b. Paris. After being grounded in the classics, he commenced at the age of 12 the study of Hebrew, to which, as he advanced in years, he added the other branches of Semitic—Syriac, Aramaic, Samaritan, and finally Arabic. Persian and Turkish he acquired later; but though one of the greatest masters of Arabic and Persian that ever lived, he never made much progress in Turkish. Modern European languages and jurisprudence formed collateral branches of his stupendous acquisitions. From 1781, he held various appointments under govt., chiefly in the mint. His first appearance in the world of letters dates from 1780, when he began to contribute to Eichhorn's *Repertorium*. In 1785 he was elected a member of the French Acad.; 1793, he pub. his first great work, *Annales de Mirkhond*, transl., with commentary, from the Persian. In 1792 he retired from govt. service to pursue his favorite studies; in 1795 he was appointed to a chair in the École des Langues Orientales; but refusing to take the oath of hatred against royalty, he resigned from both institute and school, yet seems to have been allowed to teach; and 1803, when the institute was reorganized, he took his seat there again; and soon was nominated prof. of Persian at the Collège de France. Meanwhile, he had employed his seclusion to complete his knowledge of Arabic, and with such thoroughness that he originated the true modern Arabic scholarship. In 1808 he became a member of the corps législatif, and was subsequently attached to the commission and council of public instruction. In 1822, he was made administrator of the Collège de France and the École Spéciale des Langues Orientales; and in the same year he founded, with Abel Rémusat, the Société Asiatique. Under the Orleans govt., to which he soon attached himself, he was nominated perpetual sec. of the Académie des In-

## SACY—SAD.

scriptions. Yet his numerous public duties never led him to relax in the least his studies; and the number of his essays, memoirs, pamphlets, papers, etc., besides his larger works, is prodigious. He died, full of years and honors. The Acad. had a medal struck in his honor, and his bust was placed in the library of the Institute. Oriental studies owe to him more than to any other orientalist of our age; irrespective of his own brilliant labors, he furthered his favorite science in every possible way—founding, or causing to be founded, oriental chairs in France; and gathering such disciples as Freitag, Kosegarten, Rasmussen, Chézy, Quatremère, Jaubert, Saint-Martin, and many others.

Among his works is *Grammaire Arabe*, the most classical work of its kind, and which has given Arabic studies a new impulse, forming the turning-point between the ancient and modern oriental philology. Next stands *Chrestomathie Arabe*, with *Anthologie Grammaticale Arabe*. Among his other writings are *Mémoires sur Diverses Antiquités de la Perse*; transl. of Abdollatis's *Egypt*, with notes; editions of *Calila ve-Dimnah*; of the *Pendnámeh*, with Fr. transl.; the *Makamat* of Hariri; *Mémoires sur l'État Actuel des Samaritains*; *Exposé de la Religion des Druses*; and manifold contributions (more than 400) to the *Magasin Encyclopédique*, *Mémoires de l'Institut*, *Recueil de l'Académie des Inscriptions*, *Fundgruben des Orients*, *Annales des Voyages*, *Journal de la Société Asiatique*, *Biographie Universelle*, and Eichhorn's *Reportorium für biblische und orientalische Literatur*, *Revue des Deux Mondes*, etc.

**SACY'**, SAMUEL USTAZADE SILVESTRÉ DE: journalist: 1801–1879, Feb.; son of Baron Silvestre de S. From 1828 he was attached to the staff of the *Journal des Débats*. It is supposed that, not omitting to take part in almost every public question, he wrote about two-thirds of the political articles in that paper, 1828–52. From 1852, when the empire was re-established, he relinquished politics, and became the principal reviewer of the paper. In 1848 he was appointed administrator of the Mazarin Library; 1854 was elected a member of the Acad.; 1864 became a member of the council of education; in 1867 of the senate. In 1858 he pub. a collection of his literary articles (*Variétés Littéraires, Morales, et Historiques*, 2 vols.). He edited a number of religious works; and 1861–64 an ed. of the Letters of Madame de Sévigné, 11 volumes.

**SAD**, a. *săd* [W. *sad*, wise, sober: Low Ger. *sade*, rest, quiet—from *setten*, to set or fix: Dan. *sat*, sedate: comp. Gael. *saod*, care, attention]: sorrowful; melancholy; gloomy; depressed by grief or affliction; calamitous, as an event; as a word of burlesque or familiar complaint, inconvenient; vexatious; bad; in *OE.*, serious; grave; attentive; cohesive; of a sombre dark shade. **SAD'DER**, comp. *-ér*, more sad. **SAD'EST**, superl. *-ést*, most sad. **SAD'LY**, ad. *-lī*. **SAD'NESS**, n. *-nës*, the state or quality of being sad; heaviness; sorrowfulness. **SAD'IRON**, a smoothing-iron, so named from its weight, now termed a flat-iron. **SAD'BREAD**, in

## SADALMELIC—SADDLEBACK.

O.E., heavy, imperfectly baked, and brown bread.—SYN. of 'sad': melancholy; mournful; dejected; moody; sorrowful; grievous; cheerless; depressed; serious; sedate; downcast; calamitous; grave; afflictive; grievous; heavy.

SADALMELIC, n. *sá'dál-má-lík* [corrupted Arabic, the king's lucky star]: the chief star of the constellation Aquarius; called also a Aquarii.

SADDA: see SADDER.

SADDEN, v. *sád'n* [from SAD, which see]: to make sad or sorrowful; to become sad. SADDENING, imp. *sád'níng*: N. in *dyeing*, method of applying certain mordants to cause them to produce darker or duller shades. SADDENED, pp. *sád'nd*.

SADDER, n. *sád'dér*, or SAD'DA, n. -*dá* [Per. *saddar*, the hundred gates or ways—from *sad*, a hundred; *dar*, a gate, a way]: a summary or abridgment of the Zend-Avesta or sacred books of the anc. Persians, in modern Persian.

SADDLE, n. *sád'l* [Dut. *zadel*; Ger. *sattel*, a saddle: L. *sedilé*, a seat—from *sedérē*, to sit]: seat placed on the horse's back, for the rider: it consists of the wooden frame or *saddle-tree*, the *skirts* or padded *under-flaps*, the *upper-flaps* and *seat* (usually of tanned pig-skin), the *girth* or *belly-band*, the *stirrup straps*, the *stirrups*, and the *crupper-loop*. A racing saddle may weigh not more than two or three lbs.; a cavalry saddle is about four times as heavy.—Among *seamen*, saddle is a block of wood nailed on the lower yard-arms: V. to put a saddle on; to load; to burden. SAD'DLING, imp. -*líng*. SAD'DLED, pp. -*ld*. SAD'DLER, n. -*lér*, one who makes or sells saddles. SAD'DLERY, n. -*č*, materials for saddles; articles sold by saddlers. SADDLE OF MUTTON, OF VENISON, etc., two loins of mutton, venison, etc., cut together. SADDLE-BACK, in *geol.*, a familiar term for anticlinal strata, from their sloping or dipping right and left in saddle form; a hill constituting a ridge. SADDLE-BACKED, a. shaped like a saddle. SADDLE-BAGS, two bags of leather united by straps to be thrown across the horse's back, one hanging on each side.. SADDLE-BOW, the pieces which form the arched form of a saddle. SADDLE-CLOTH, a cloth under a saddle, and extending behind it. SADDLE-GIRTH, the band or girth which passes under the horse's belly to fasten the saddle. SADDLE HORSE, a horse suitable for riding, or trained for it (see HORSEMANSHIP). SADDLE-SHAPED, a. in *bot.*, bending down at the sides so that a rounded form is given to the upper part. SADDLE-TREE, the framework of a saddle. To PUT THE SADDLE ON THE RIGHT HORSE, to impute blame where it is really deserved. WELL or FIRM IN THE SADDLE, firmly seated or settled.

SAD'DLEBACK: well-known mt. in Cumberland, England, 4½ m. n.e. of Keswick, 2,787 ft. high.—The name is given to several mts. in the United States.

## SADDUCEES—SADH.

**SADDUCEES**, n. *săd'dū-sēz* [from *Zadok*, the founder of the sect; Heb. *tsadoq*, just]: party or school among the anc. Jews who denied the resurrection of the dead, or the existence of angels or spirits, and who adhered to the written law alone. **SAD'DUCE'AN**, a. *-sē'an*, of or pertaining to the Sadducees. **SAD'DUCEEISM**, n. *-izm*, the tenets of the Sadducees.—The *Sadducees* were a school or party—not a ‘sect’ as they have been generally denominated since Josephus—of the times subsequent to the Syrian wars; and often mentioned in the New Test., the Talmud, and the Midrash. Their origin, as well as their name, has given rise to many speculations, but none satisfactory. Modern investigators have derived the name from *Zadiok*, righteous man, a denomination which the S. are supposed to have assumed in contradistinction from the Pharisees, the Separatists, as designating their own rejection of all superfluous and exaggerated religious practices, and their stand upon the words of the law itself. For their tenets, as contrasted with those of the Pharisees, see that title.

It was a misconceived notion of some church Fathers, that the S. rejected all the canonical books of the Old Test. except the Pentateuch. They held the whole Old Test. as sacred as the Pharisees, quoting from all its parts in support of their views. Otherwise they would not have remained in the Sanhedrim, their members would not have been high-priests, and the Pharisees would not have fought against them with casuistry about trifles. But, on the other hand, their sober, but cold and lifeless rationalism, could not—apart from their aristocratic tendencies—while the immense struggle for liberty was still fresh in the people’s minds, gain for them that popular sympathy which the Pharisees—eager, jealous, patriotic, pious, learned men of the people, enthusiastic men of progress—easily acquired and held. The Sadducees were largely easy men of the world, indifferent to, and insensible of, spiritual truth. Their theological views had in large part a basis in their political aims which looked toward re-establishing the Israelitish nationality; while the Pharisees taught the people to endure patiently till their kingdom should be restored in the Resurrection. Thus Sadduceeism, of which we hear so much in the New Testament—and against which as ‘the leaven of Herod,’ Christ cautioned his’ disciples, while he denounces, as does the Talmud, only the hypocrites among the Pharisees—died out soon after the 1st c. The term under which they are once mentioned in the Mishna, viz., Karaim, became later the name of a Jewish sect, still in existence, who reject all tradition, holding the Written Law as their sole guide: see JEWISH SECTS. The Talmud speaks of writings of the S., but nothing has survived.

**SADH**, n. *sād*, or **SAADH**, n. *sād'ad* [Hind. *sadha*, pure or puritan]: a Hindu religious sect founded, 1658, by a man called Birbhan. They believe in one God, who alone is to be worshipped. They have no temples, but assemble at stated periods in houses or courts adjoining to them. They teach a pure morality. Their numbers are few, and are found chiefly in Furruckabad, Delhi, Mirzapore, in India.

## SÂDI—SADLY.

SÂDI, *sá'dé*, MUSLIH-UDDIN (correctly MUSHARRIF-UDDIN b. MUSLIH-UDDIN): greatest didactic Persian poet: about 1184–1292 (or 1291, Dec.); b. Shiraz, Persia; son of Abdallah; descendant of Ali, Mohammed's son-in-law. Notwithstanding his noble lineage, his father held but an insignificant position. S. received his education in science and Mohammedan theology at Bagdad, whence he undertook, with his master, his first pilgrimage to Mecca; which he subsequently repeated 14 times. He travelled many years, and is said to have visited parts of Europe, Barbary, Abyssinia, Egypt, Syria, Palestine, Armenia, Asia Minor, Arabia, Persia, Tartary, Afghanistan, and India. Near Jerusalem, 'where,' he says, 'I associated with the brutes,' he was taken prisoner by the Crusaders, not while fighting, but while practicing religious austerities in the desert. He was ransomed for ten dinars by a merchant of Aleppo, who recognized him, and gave him his daughter in marriage; this union, however, did not prove happy. He married a second time, and lost his only son from that marriage. The latter part of his life S. spent in retirement near his native town, and he died, according to the best authorities, at the age of nearly 110 years.—His was a contemplative, pious, and philosophical disposition. Criticism in the modern western world can scarcely assent to all the praises of S. from his own countrymen; yet doubtless this 'nightingale of thousand songs' has a place among the foremost masters of poetry; and the honors showered on him by princes and nobles were merited. A magnificent mausoleum, with mosque and college attached, was erected in his honor at the gate of Shiraz; and thither the people flocked in pilgrimage.

The catalogue of his works comprises 22 different kinds of writings in prose and verse, in Arabic and in Persian, of which *ghazels* and *kassidas* (odes, dirges) form the predominant part. The most celebrated and finished of his works is the *Gulistan*, or Rose-garden, a kind of moral work in prose and verse, consisting of eight chapters, on Kings, Dervishes, Contentment, Taciturnity, Love and Youth, Decrepitude and Old Age, Education, and the Duties of Society, the whole intermixed with stories, maxims, philosophical sentences, puns, and the like. Next to this stands the *Bostan*, or Tree-garden, somewhat similar to the *Gulistan*, but in verse, and more religious. Third in rank stands the *Pend-Nameh*, or Book of Instructions. Elegance and simplicity of style and diction form the chief charm of S.'s writings. In wit, he is not inferior to Horace, with whose writings he, according to one source, may have been acquainted, since he is said to have known Latin. The first complete ed. of his works called the *Salt-cellar of Poets*, by Harrington, was pub. Calcutta 1791–95. The *Gulistan*, first ed. with Lat. transl. by Gentius (Amst. 1651), has been reprinted frequently, and transl. into European tongues, into English chiefly by Gladwin, Ross, and Eastwick. The *Bostan* likewise has been translated.

SADLY, SADNESS: see under SAD.

## SADO—SAFE.

SADO, *sá'dō*: island, a few m. w. of and belonging to Japan. It is of irregular form, about 40 m. long and averaging 8 m. in width; and has a poor soil, which is but slightly cultivated. Mining of gold, silver, copper, and lead, is the principal industry. Ore is found in vast quantities, but is of only moderate quality. Pop. about 125,000.

SADOWA, *sá-dō'rā*, BATTLE OF: the decisive engagement of the war between Prussia and Austria; known also as the battle of Königgrätz; at the village of S., on the Bistritz river, in the n. part of Bohemia, Austria, 58 m. from Prague, 1866, July 3. Having crossed the mountains in two divisions, the Prussians were united in Bohemia under King William I. This army consisted of about 220,000 men with about 800 guns. The Austrian force, of about 185,000 men with nearly 800 guns, was led by Marshal Benedek. The battle raged from about 7 A.M., till nearly 4 P.M. The Austrians were completely routed. They lost 40,000 killed and wounded, 20,000 prisoners, and 174 guns, while the Prussians lost only about 10,000 men. It is claimed that this overwhelming victory was due to the fact that the Prussians were armed with the needle-gun, and the Austrians used the ordinary musket. Among the results of this battle were the unification of N. Germany, the securing of an independent legislature for Hungary, and the possession of Venetia by Italy.—See GERMANY (North German Confederation).

SADR, n. *săd'r*: the name given by the Arabs of Barbary to the lote-bush, *Zizyphus Lotus*, whose berries they use as food.

SAETERSBERGITE: see LEUCOPYRITE.

SAFE, a. *săf* [F. *sauf*—from L. *salvus*, safe: It. *salvo*]: free from danger or risk; secure; no longer dangerous; placed beyond the power of doing harm; certain; sure: N. a box or press, generally detached, and hung on a wall, usually covered with wire-cloth or perforated zinc, in which meats may be kept cool; a fireproof chest or closet for containing money, valuable documents, and the like: V. in *OE.*, to render safe; to bring security to. SAFE'LY, ad. *-lī*, in a safe manner; securely; without danger or hurt. SAFE'NESS, n. *-nēs*, or SAFE'TY, n. *-tī*, the condition of being safe; freedom from harm or danger; preservation; custody; the state of making safe or secure. SAFE-CONDUCT [F. *sauf-conduit*]: passport granted, on honor, to a foe, for purposes of conference, etc., enabling him to pass where it would otherwise be impossible for him to go with impunity. To violate the provisions of such a pass has always been abhorred as a breach of the laws of honor. SAFE-KEEPING, the act of keeping or preserving in safety. SAFETY-ARCH, an arch formed in a wall, as over a door or window. SAFETY-BELT, a belt constructed of some light material, or capable of being inflated with air, for enabling a person to float in water; a life-preserved. SAFETY-BUOY, an article constructed of very light material, generally in the form of a circle, to be thrown into water to enable per-

## SAFED—SAFEGUARD.

sons to float till they are rescued. SAFETY-CAGE, n. a hoisting and lowering chamber for mines, having guards which arrest the descent if the rope break or overwind (see MINING). SAFETY-FUSE, fuse employed to prevent premature explosions in blasting operations—consisting of a hollow cord of spun yarn or hemp (or of gutta-percha), tarred on the outside to render it waterproof, and filled with tightly-rammed gunpowder: this fuse ignites steadily at the rate of about two ft. per minute, so that the time of the explosion can be easily regulated. SAFETY-LAMP, & lamp covered with wire-gauze for use in mines (see below). SAFETY-PAPER, n. a paper chemically or mechanically prepared, so that its color or texture will be changed by being tampered with. SAFETY-PIN, n. a pin having its point fitting into a kind of sheath. SAFETY-PLUG, a plug of fusible metal placed in an orifice in a steam-boiler, so that should the temperature of its fusing-point be reached, danger is lessened by its melting and letting out water and steam. SAFETY-VALVE, valve in the boiler of a steam-engine which opens when the pressure within becomes too great for safety (see below).

SAFED, *sā-fēd'*: small town of Palestine, pashalic of Acre, in the anc. province of Galilee; on a mountain 2,500 ft. high, 12 m. n. of Tiberias. The inhabitants manufacture and dye cloth, and the country in the vicinity is largely productive of wine and oil. With many Jews it is an ardent wish to die at S., because they believe that the expected Messiah will make it his capital. The Jews have about 30 synagogues in the town, also a college for instruction in Hebrew and the Talmud. Before 1837, S. was a handsome town; but in that year it was partly destroyed by an earthquake, and more than 2,000 people were killed. Pop. 17,200, mostly Jews and Moslems.

SAFEGUARD, n. *sāf'gārd* [*safe*, and *guard*]: a convoy or guard to protect a traveller, or a party, in times of war or danger; that which secures safety; defense; protection: V. to convoy or protect; to make secure. SAFE'GUARDING imp. SAFE'GUARDED, pp.

## SAFES.

**SAFES:** receptacles for protecting against fire or theft valuable, such as money, jewels, documents, etc. Our forefathers used oaken chests secured with iron straps and studs for similar purposes. Such a chest formerly contained the crown-jewels of Scotland, and is still exhibited in Edinburgh Castle. Subsequently, iron chests made simply of stout cast or wrought iron were used. The foundation of the plan on which fire-proof safes are still constructed was laid by Richard Scott of England 1801. William Marr of London was the first to patent and make public a method of construction 1834. He filled the space between the inner and outer cases with sheets of mica, attached to paper, and crowded powdered charcoal and burnt clay about the sheets after they had been properly placed. Charles Chubb, London, began using concentric linings of iron plates, with baked wood ashes between, 1838. Mr. Thomas Milner 1840 patented a fire-proof safe improving on these principles. In 1843 letters patent were granted to Messrs. Tann for a mixture of pounded alum and gypsum, previously heated and cooled, as a fire-resisting medium placed between the two plates of iron, three to six inches apart, which together form the wall of the safe. Milner's plan was to fill the jacket formed by the double-plated sides with sawdust, in which were packed a number of small tubes filled with an alkaline solution, and hermetically sealed, or crystals of alum or soda, containing 40 to 60 per cent. of water of crystallization. In case of fire, and the safe becoming heated, the tubes burst, or the crystals melt, and saturate the sawdust with water, which becomes steam, and passes into the inner chamber of the safe and thus protects the contents, if inflammable, from fire for a considerable time. Fire-proof safes are still made on the same principle. Messrs. Chubb use a mixture of alum and a mineral substance which they procure from abroad. Many of the safes now made are rooms rather than boxes.

In the United States the late James Conner, type-founder, New York, is credited with having made the first fire-proof safe, bet. 1829 and 32. He made a strong box of iron, filled the sides with plaster of Paris, and used it in his office several years. In 1843 the Fitzgerald safe appeared. Conner claimed priority of invention, backed with his original device, but the courts recognized Fitzgerald as the patentee, on the ground that Conner had never made his invention known. Since then there have been innumerable improvements of this indispensable article, till now there are safes as large as a modern sized bedroom, and others diminutive in size, both extremes representing the perfection of inventive skill. After providing a safe reasonably fire-proof, inventors applied themselves to making it burglar-proof as well; and this compound necessity of the business-world has resulted in some of the most marvellous and beautiful creations of mechanical study and skill. Safes that would withstand the heat of an ordinary fire had to be specially strengthened in their exterior parts to resist the drills and

## SAFETY-LAMP.

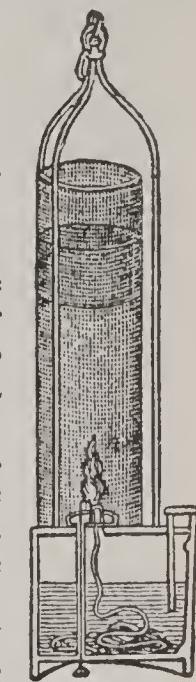
scientific implements of the professional thief; and associated with this task was that of providing adequate locks. The highest perfection in a fire-proof and burglar-proof door yet reached is seen on the inside of the massive doors recently attached to the great safes of the U. S. sub-treasury in New York; yet so skilful are the manufacturers of burglars' tools that these locks—marvels of tongues, bars, and bolts, controlled by a single small time-lock knob, are supplemented by a labyrinth of electrical wires and a perpetual armed guard. See Lock.

Probably every city, and nearly every town of importance, in the United States have now one or more *safe-deposit* companies, in whose fire and burglar-proof vaults small pieces of extra valuable property may be stored for any length of time on payment of graduated rentals. The vaults are surrounded by all the elements of security known to human ingenuity, and the safes and boxes of various sizes within them, which are offered for rent, are so guarded by special locks and doors, and subjected to such strict rules, that no one person can gain access to their contents, even legitimately, without the aid of several officers, each having a special branch of the general protection in his charge. The first corporation organized in the United States for the sole purpose of keeping valuables and securities, and renting fire and burglar-proof vaults, was the Safe Deposit Co. of New York, chartered 1861, Apr. 15. Prior to the provision of these special vaults, the only means of preserving extra valuable property was to deposit it in the safe of a bank, or of some large business concern; but such depositaries were only accessible to persons having intimate relations with banks, and then only as special favors. Receptacles in safe deposit vaults rent from \$5 per annum upward, to a large sum, according to size. Renters are allowed access to them at all proper hours, under surveillance of an officer; and accomodations are provided in private rooms for renters to examine their property, or to increase or decrease their securities without being observed. Many of the larger banks have such safe-deposit vaults attached to them.

SAFETY-LAMP: lamp, with provision against explosive gases; for use in mines. When marsh-gas or light carburetted hydrogen, frequently disengaged in large quantities from coal in mines, is mixed with seven or eight times its volume of atmospheric air, it becomes highly explosive, taking fire at the approach of a light, and burning with a pale blue flame. Moreover, this gas in exploding renders ten times its bulk of atmospheric air unfit for respiration, and the *chokedamp* thus produced is often as fatal to miners as the primary explosion. Sir Humphrey Davy, investigating the subject of flame, discovered that when two vessels filled with a gaseous explosive mixture are connected by a narrow tube, and the contents of one are fired, the flame is not communicated to the other, provided the diameter of the tube, its length, and the conducting power for heat of its material, bear certain proportions to each other; the flame being extin-

## SAFETY-LAMP.

guished by cooling, and its transmission rendered impossible. In this experiment, high conducting power and diminished diameter compensate for diminution in length; and to such an extent may the length be reduced, that metallic gauze, which may be looked upon as a series of very short square tubes arranged side by side, completely arrests the passage of flame in explosive mixtures; and this forms the protection in the S.-L. The following are Davy's directions regarding the structure of his lamp: 'The apertures in the gauze should not be more than  $\frac{1}{22}$  of an inch square. As the fire-damp is not influenced by ignited wire, the thickness of the wire is not of importance; but wire from  $\frac{1}{40}$  to  $\frac{1}{60}$  of an inch in diameter is the most convenient. Iron-wire and brass-wire gauze, of the required degree of fineness, are made for sieves by all wire-workers; but iron-wire gauze is to be preferred: when of the proper degree of thickness, it can neither melt nor burn; and the coat of black rust which soon forms upon it superficially defends the interior from the action of the air. The cage or cylinder should be made of double joinings, the gauze being folded over so as to leave no apertures. When it is cylindrical, it should not be more than two inches in diameter; for, in larger cylinders, the combustion of the fire-damp renders the top inconveniently hot, and a double top is always a proper precaution, fixed at the distance of half or three-quarters of an inch above the first top. The gauze cylinder should be fastened to the lamp by a screw of four or five turns, and fitted to the screw by a tight ring. All joinings should be made with hard solder; and the security depends upon the circumstance that no aperture exists in the apparatus larger than in the wire gauze.' The cylinder is protected by three external, strong, upright wires, which meet at the top; and to their point of junction a ring is attached, by which the lamp is suspended. The oil is supplied to the interior by the pipe projecting from the right side of the figure, and the wick is trimmed by a wire bent at the upper end, and passed through the bottom of the lamp, so that the gauze need not be removed for this process. (The wire is shown in the figure.) When a lighted lamp of this kind is introduced into an explosive mixture of air and fire-damp, the flame is seen gradually to enlarge as the proportion of light carburetted hydrogen increases, until at length it fills the entire gauze cylinder. Whenever this pale enlarged flame is seen, the miners should depart to a place of safety, for though no explosion can occur while the gauze is sound, yet at that high temperature the metal becomes rapidly oxidized, and might easily break; and a single aperture of sufficient size would then occasion a destructive explosion. In a strong current of air, the heated gas may be blown through the apertures



Safety-lamp.

## SAFETY-LAMP.

of the gauze before its temperature is sufficiently reduced to prevent an explosion; but such a contingency may be guarded against by placing a screen between the draught and the lamp. In 1815 Sir Humphry Davy presented his first communication to the Royal Soc. respecting his discovery of the safety-lamp; and at the meeting 1816, Jan. 11, the S.-L. was exhibited. Sir Humphry Davy's claim as original discoverer was immediately challenged by various persons, especially Dr. Reid-Clanny of Newcastle, and the great engineer, George Stephenson. Clanny's S.-L. (see *Philosophical Transactions*, 1813) was based on the principle of forcing in air through water by bellows; but the machine was ponderous and complicated, and required a boy to work it; moreover, he had been anticipated by Humboldt 1796 (Weld's *History of the Royal Society*, II. 288, note). As to Stephenson, notwithstanding a report of the Royal Soc. 1817, Nov. 20, totally adverse to his claims, there is undoubted evidence that, during the very months Davy was at work on the experiments which led to his invention, Stephenson's (familiarly called the *Geordy*) lamp was actually in use at the Killingworth mines. In its general principle it was the same as Davy's, the main difference being that the Stephenson lamp had a glass cylinder inside the wire-gauze cylinder, and that inside the top of the glass-cylinder was a perforated metallic chimney; the air being supplied through a triple circle of small holes in the bottom. On the subject of this controversy, see Smiles's *Life of George Stephenson*.—It has been generally agreed that there is a decided advantage in having a glass cylinder besides the gauze one, to resist strong currents of air; and that glass without gauze is not safe from fracture. In the French and Belgian collieries, Mueseler's lamp is in almost universal use. It consists of a glass cylinder immediately around the flame, and of wire gauze above. An internal metal chimney opening a short distance above the flame creates a strong upward draught, which causes the feed air to pass briskly down from the wire gauze, and so keeps the glass cool and insures thorough combustion. Mueseler's lamp is also used in a few English collieries; but modifications of Davy's and Stephenson's are still in general use in England.

Under a British act of 1887, the use of the old unbonneted forms was stopped, and a choice from the many new designs became necessary. Among these the Hepplewhite Gray and the Howat Deflector have been preferred, while the Mueseler, the Morgan, and the Marsaut have obtained a good name. The Hepplewhite Gray is preferred by deputies, firemen, and timberers, because of the large amount of light given by it, its deflection of the light toward the roof by its conical glass, and its power to detect small quantities of gas, in which it is superior to all others. The chief peculiarity of this lamp, and one in which it differs from all others, is the admission of the feed-air from the top, down inlet tubes, three or four, and then through an annular chamber immediately above the oil-vessel. The only gauze used is that covering the outlet

## SAFETY-VALVE.

and the annular inlet chamber. The projecting top of the lamp so protects the inlet tubes that it is impossible for a current to rush down them. Numerous experiments have proved the safety of this lamp in currents of high velocity.

For the ordinary miner, the Deflector has given by far the best results. It will continue to burn even where the unbonneted varieties will not, and the light given in impure air is superior to that obtained from any other form. Its indication of gas is exceeded only by the Gray and the Mueseler. The miners like it above every other, because it gives a good light for a long time, burns brightly in slow and impure currents, and can bear much knocking about. This lamp has a peculiar arrangement for heating the inlet air and deflecting the current onto the flame, securing the use of all the air and in a heated state, which causes it to burn in air so impure that all ordinary forms, even unbonneted ones, go out at once.

The Mueseler lamp ranks next to the Gray as a detector of gas. It is one of the safest of all lamps, from the double shield employed. The Morgan detects gas well, burns well in a good current of air, and does not become hot; but both this and the Mueseler burn badly in 'dampy' or slow currents.

Closely connected in its objects with the safety-lamp is an ingenious invention patented by Mr. Ansell of the British mint, for determining, by a simple application of the law of osmotic force, the presence of light carburetted hydrogen in coal mines. Of two or three forms of apparatus, the following is the most simple: A thin india-rubber ball filled with atmospheric air is placed on a stand under a lever which slightly presses its upper surface. This lever is connected with a spring, which it liberates when, from any cause, the lever is raised; and the liberation of the spring sets a bell in vibration. If this trap for the discovery of fire-damp is set where that gas is present to any material extent, the noxious gas enters the ball by virtue of osmose, causes it to swell, and when the swelling has attained a certain point, the warning bell rings.

Electric Light (q.v.) has recently been introduced into mining. The obstacle has been the lack of facility for economically dividing the light from one electric source into many comparatively small lights. As it burns *in vacuo*, it can be rendered perfectly safe in an explosive mixture of fire-damp and air. There have been several inventions; in one of which (by Dumas and Benoit) the light is produced by a current from a Ruhmkorff coil passing through a Geissler's vacuum tube: the tube, however, really contains a highly rarefied gas, such as carbonic acid, and the light is only a rich phosphorescent glow. Some collieries have recently been lighted with electric lamps on Swan's principle.

**SAFE'TY-VALVE:** circular valve on an opening in the top of a steam-boiler, and kept in place by weights piled above it, or by a lever of the second kind with a weight capable of sliding along the arm, or by a lever and spring. In stationary engines, one valve is frequently sufficient, and the retaining of the valve in place is by the first or second

## SAFFI—SAFFLOWER.

of the methods above. In locomotive engines, there are two loaded valves: one, called the *lock-up valve*, from its being out of the engineman's reach and control, is placed far forward on the top of the boiler, and kept down by weights; the other on the hinder part of the top of the boiler, is for safety subjected to a less pressure than the lock-up valve, and is acted on by a lever and spring. Whenever the tension of the steam rises above a certain amount (=the weight in lbs. with which the valve is held down divided by the area in inches of the undersurface exposed to the steam), the valve is forced upward by the greater pressure beneath, steam escapes, till the pressure on the boiler having been thus relieved, the valve sinks to its place. The only precaution necessary is to be sure that the valves are not too heavily loaded or fastened either through neglect, or in wilful risk for the sake of speed.

SAFFI, *sâf'fè*, or AZAFFI, *â-zâf'fè*, or ASFI, *âs'fè*: seaport of n. Africa, kingdom of Morocco, 107 m. w.n.w. of the city of Morocco. It is surrounded by waste and desert land; and its inhabitants are said to be the wildest, greediest, and most fanatical of the kingdom. It was at one time the chief seat of the trade with Europe, and though it has declined with the rise of Mogadore, it still exports silk, wool, leather, gum, and goatskins. Pop. about 12,000, of whom 3,000 are Jews.

SAFFIAN, n. *sâf'fi-an* [Rus.]: a dyed leather made at Astrakhan and other parts of Asiatic Russia. It is principally prepared from goatskins, and the colors used are red and yellow.

SAFFLOWER, n. *sâf'flow-r* [from Eng. *saffron*, and *flower*], (*Carthamus tinctorius*): plant resembling saffron, of nat. order *Compositæ*, allied to Thistles (q.v.), but distinguished by its heads of flowers having only hermaphrodite florets, and the fruit having four ribs and no pappus. It is an annual, cultivated in American country gardens, and is 1-3 ft. high, branching toward the top; flowers

dark orange, or vermillion. It is a native of the E. Indies, from which it was introduced probably in a remote age into Egypt and the Levant, where it is now naturalized. It is cultivated largely in France, and s. Europe, and in parts of S. America, chiefly for the corollas of the florets used in dyeing yellow and red. In France, the flowers are picked by the hand in dry weather, and very carefully dried on a kiln under pressure, which forms them into small round cakes. The s. of Persia is generally esteemed the best; but India exports a large quantity. From its resemblance to saffron, S. is sometimes called *Bastard Saffron*, and used to adulterate saffron. The yellow coloring matter of S. is a kind of extractive. The red coloring matter is Carthamine (q.v.). The coloring matter of Rouge



Safflower (*Carthamus tinctorius*).

**matter is Carthamine (q.v.).**

## SAFFORD—SAFFRON.

(q.v.) is from S.—The seeds of S. are bitter and very oily: they are greedily eaten by parrots and many other birds. They are sometimes used as a purgative. The oil from them is employed in the E. Indies in rheumatism and paralysis.

SAFFORD, *säf'erd*, TRUMAN HENRY, PH.D.: astronomer: b. Royalston, Vt., 1836, Jan. 6. His mathematical powers in childhood were phenomenal. At an early age, he could perform such mental exercises as extracting the square root to 10 places of figures. At 14 years, he calculated the orbit of a comet. He graduated at Harvard 1854, and studied in the observatory, of which he was for a time director. 1865–71, he was prof. of astron. in Chicago Univ. and director of Dearborn Observatory; later, astronomer of the U. S. engineers in territorial surveys; and from 1876, prof. of astron. in Williams College. His publications have been chiefly important catalogues of stars, and papers in scientific journals.

SAFFRENE, n. *säf'rēn* [F. *safran*, saffron]: in chem., C<sub>10</sub>H<sub>16</sub>. One of the constituents of sassafras oil. It boils at 155°–157°, has a sp. gr. of 0.834, and deflects the ray of polarized light to the right.

SAFFRON, n. *säf'rōn* [F. *safran*—from It. *zafferno*—from Ar. *za'farān*, saffron]: dried stigmata of the plant *Crocus sativus*, ord. *Iridacēæ*, which have fine deep-orange color; the stigmata *C. autumnalis* and *C. odorus* also supply saffron: ADJ. having the color of saffron flowers; yellow.—*Saffron* is a coloring material from one species of yellow crocus, was introduced into Europe from Asia Minor, and is largely produced in several countries, but chiefly in Spain. In England, the crocus is mentioned in the 10th c., but afterward disappeared from w. Europe till 1339, when it was introduced from the East by a pilgrim; and

1582 it was extensively cultivated for yielding S., especially in Essex, at the place now called Saffron-Walden. Its cultivation in Britain for this product has almost entirely ceased, and the S. used is imported. S. from very early ages had great medicinal reputation: Homer mentions it; and in Canticles iv. 14, it is associated with spikenard and other precious drugs and spices. A large portion of the supply in ancient times was yielded by Cashmere, where it is still extensively cultivated. It is used also as a perfume, and in flavoring and coloring confectionery and other articles of food, which are now its chief



Saffron (*Crocus Sativus*). uses in western countries, where its medicinal use has nearly ceased.—The color yielded by S. is a bright golden yellow, due to a peculiar principle called *Polychroite*. Its great solubility in water prevents its being used as a dye for fabrics; but its agreeable flavor, and the absence of all

## SAFFRON-WALDEN—SAGA.

injurious qualities, render it of great service in coloring articles of food.

The *S. Crocus* (*Crocus sativus*: see CROCUS) differs from most of the species of that genus in flowering in autumn, not in spring. It has large deep purple or violet flowers, with the throat bearded, and the long drooping trifid stigma much protruded from the tube of the perianth. The stigmas are the only valuable part of the plant. In its cultivation, the corms are planted in the beginning of summer in rows six inches apart, and three inches from bulb to bulb; the most suitable soil being a sandy loam, thoroughly tilled. The stigmas are gathered and spread on cloth or paper, and dried in the sun, or in kilns or drying houses. The produce of an acre of *S.* is about 5 lbs. the first year, and 24 lbs. the second and third years, after which the plantation must be renewed.—The vari-colored Spring Crocus (*C. vernus*) and its yellow varieties, *luteus* and *Susianus*, have short, dilated, jagged stigmas.

SAFFRON-WALDEN, *săf'rōn-wawl'den*: market-town and municipal borough of England, county of Essex, 24 m. n.n.w. of Chelmsford, 44 m. n.n.e. of London. The Church of St. Mary the Virgin, dating from the time of Henry VII., is an elegant specimen of late Perpendicular. The chief trade is in barley, malt, and cattle. The town took its name from the former culture of Saffron (q.v.) in its vicinity. Pop. (1871) 5,718; (1881) 6,056; (1891) 6,104.

SAFRANIN, n. *săf'ra-nĭn* [F. *safran*, saffron]: in chem., saffron yellow; polychroite; the yellow coloring-matter of saffron, obtained as an inodorous powder, soluble in water and alcohol, almost insoluble in ether. It is colored blue by sulphuric acid, green by nitric acid, and dark brown by hydrochloric acid.

SAG, v. *săg* [Scot. *seg*, to sink, as liquids in a cask from absorption: Gael. *sug*, to imbibe; *sugh*, to drain, to dry up: Sw. *sacka*, to settle, sink: Ger. *sacken*, to sink]: to sink gradually down; to become depressed; to hang heavy; to incline from an upright position; to cause to bend or give way. SAGGING, imp.: ADJ. bending or sinking underneath a weight. SAGGED, pp. *săgd*: ADJ. overloaded. To SAG TO LEEWARD, in nav., to make a considerable leeway.

SAGA, n. *să'ga* [Icel. *saga*]: one of the group of anc. heroic tales and myths of the races of northern Europe. Saga is an old Norse word used to denote a tale which, originally dependent on, and gradually elaborated by, oral tradition, had at last acquired definite form in literature. Such sagas (Norse *Sögur*), with poetical and legislative writings, are the chief part of the old Norwegian-Icelandic literature. They have been divided into historical and legendary. The latter embrace partly stories universally current about heroes of the Teutonic race (e.g., the *Völsunga-Saga*), and partly stories peculiar to the Norse or Scandinavian peoples (e.g., the *Frithjofs-Saga*); while the former deal with the events and personages of Norwegian and Icelandic history from the 9th to the 13 c., in numerous biographies and family records. To Danish

## SAGABENUM - SAGE.

history belong the *Knytlinga-Saga* and *Jomsvikinga Saga*; to Swedish, the *Ingvarts-Saga*; to Russian, the *Eymunds-Saga*. The Faroe Islanders and the Orcadians also have their own sagas. After the middle of the 14th c., when the motley literature of the church began to exercise an influence, tales were translated from foreign languages into Norse, e.g., the story of *Barlaam and Josaphat* (q.v.), which also received the name sagas. Bp. P. E. Müller, in *Sagabibliothek* (Copenh. 1817-20), was the first who subjected the whole saga-literature to critical treatment. Since his time, collections both of the historical and legendary sagas, with critical apparatus more or less complete, have appeared in all the countries of the north.—The German *Sage* is the same word, and expresses fundamentally the same idea as the Norse *Saga*—the difference being that the Germans do not restrict its application to the legendary or traditional literature of their own country, but extend it to that of others.

**SAGABENUM:** see SAGAPENUM.

**SAGACIOUS,** a. *sa-gā'shūs* [F. *sagace*—from L. *sagax* or *sagācem*, wise, foreseeing: It. *sagace*]: literally, keen of scent; acute; discerning; foreseeing; shrewd; intelligent. **SAGACIOUSLY,** ad. *-lī*. **SAGACIOUSNESS,** n. *-nēs*, or **SAGACITY,** n. *sa-gās'i-tū* [F. *sagacité*—from L. *sagacitatem*, keenness, acuteness]: the quality of being sagacious; acuteness; penetration.—**SYN.** of ‘sagacious’: shrewd; acute; keen; sharp; quick; judicious; discerning; sage.

**SAGAMORE,** n. *sāg'a-mōr*: a chief among some tribes cf Amer. Indians.

**SAGAN,** *sā'gān*: town of Prussian Silesia, 48 m. n.w. of Liegnitz, on the Bober, and on the Hannsdorf and Glogau railway. The people manufacture cotton and woolen cloths, and paper, and trade in yarn, cattle, and corn. In the woolen manufacture, 1,600 men are employed. Pop. (1880) 11,373.

**SAGAPEN,** n. *sāg'a-pēn*: same as SAGAPENUM.

**SAGAPENUM,** n. *sāg'a-pē'nūm* [Gr. *sagapēnon*, perhaps the *Fer'ūla Persica*, also its gum]: a fetid gum-resin brought from the East, used in medicine—seems to be the product of a species of *Ferūla*, ord. *Umbellifēræ*.

**SAGATHY,** n. *sāg'a-thī* [Sp. *sagati*]: a mixed fabric of silk and cotton; a kind of serge.

**SAGE,** a. *sāj* [F. *sage*; Sp. *sabio*, prudent—from L. *sūpērē*, to be wise: It. *saggio*]: wise; prudent; proceeding from wisdom; grave; well-judged: N. a wise man; a man venerable in years, and renowned for wisdom and gravity; a grave philosopher. **SAGE'LY,** ad. *-lī*. **SAGE'NESS,** n. *-nēs*, the quality of being sage; wisdom; prudence; sagacity.—**SYN.** of ‘sage, a.’: wise; sagacious; prudent; judicious; sapient; grave.

## SAGE.

SAGE, n. *sāj* [F. *sauge*, sage—from L. *salvia*, sage—from *salvus*, safe, sound, so called from its supposed healing properties: It. *salvia*]: aromatic garden herb, used in cookery as a condiment, and in medicine; species of *Salvia*, ord. *Labiatæ*, particularly *Salvia officinalis* and *S. grandiflora*. SAGY, a. *sāj'ī*, full of sage; seasoned with sage.—*Sage* is a genus of plants containing many species, herbaceous and half-shrubby. There are only two perfect stamens, the filaments of which bear at their summit a cross-thread—the much-elongated *connective*—fastened by a joint, and having one cell of the anther at the upper end, and the other but imperfect cell at the other end. The seeds of many of the species, when steeped in water, become covered with mucilaginous slime, like quince-seeds.—COMMON S., or GARDEN S. (*S. officinalis*), grows wild on sunny mountain slopes and rocks in s. Europe, and has long been in general cultivation in gardens. It is a half-shrubby plant, seldom more than two ft. high, with ovate-oblong, or lanceolate, finely notched, curiously wrinkled, whitish-gray leaves, and racemes of purplish-blue, rarely white or red, flowers. The whole plant has a strong, penetrating, aromatic smell, somewhat resembling camphor, and a bitterish, aromatic, somewhat astringent taste. It contains much essential oil (*Oil of S.*), used sometimes in liniments for rheumatism. *S. leaves* are much used in flavoring dishes, and in sauces, etc. The leaves and young shoots are used for astringent tonic gargles. *S. tea*, made of the dried leaves and shoots, is a popular astringent and tonic. *S.* grows best in a dry soil, and is easily propagated by slips or cuttings.—Other garden sages are the blue Mexican *S. patens*; the Mexican cardinal *S. fulgens*; the tropical American *S. coccinea*; the bristly *S. pseudococcinea*; and the Mediterranean white *S. argentea*. Our wild species include *S. lyrata*, with upper lip of calyx 3-toothed, and four s. or s.w. species, this side of the plains, all blue or white.—CLARY (q.v.) is a species of sage.—MEADOW CLARY, or MEADOW SAGE (*S. pratensis*), is a common ornament of meadows and borders of fields in most parts of Europe: it has bluish-purple flowers. It is sometimes fraudulently put into beer, to make it more intoxicating.—The APPLE-BEARING S. (*S. pomifera*) is a native of s. Europe and of the East, remarkable for its very large reddish or purple bracts, and for the large gall-nuts which grow on its branches, as on the leaves of the oak, and which, known as *S. Apples*, have an agreeable aromatic taste.—Some of the species of *Salvia* have very beautiful flowers, and are prized ornaments of gardens and greenhouses.

SAGE'-BRUSH: popular name of several species of *Artemisia*, the genus of wormwood and mugwort (family *Compositæ*), abounding on the dry plains of the west. Of these, *A. tridentata* is conspicuous. The species are bitter and aromatic, and these qualities seem to have suggested the name Sage, which belongs properly to plants of quite another family, the Mints (*Labiatae*). One species, called White Sage-brush, is said to be agreeable and nutritious to cattle.—See ARTEMISIA.

## SAGE—SAGHALIN.

SAGE, *sāj*, HENRY WILLIAMS: donor to education: b. Middletown, Conn., 1814, Jan. 31. He prepared for college, but became a merchant in Ithaca, N. Y., where he has since resided, except 1857–80 in Brooklyn, N. Y. In 1847 he was a member of the N. Y. legislature. He was associated with the late John McGraw (large donor to Cornell Univ.) in great lumber enterprises, especially at West Bay City, Mich., where Mr. S. gave a public library at cost of \$30,000. He has made liberal benefactions to many educational and religious objects, endowed the Lyman Beecher lectureship on preaching at Yale, and contributed much to the Henry Ward Beecher statue; but his principal gifts have been to Cornell Univ., and he has been pres. of the trustees since 1874. Up to 1890, Dec., his gifts have been as follows: for the dept. for women, known as Sage Coll., with equipment, conservatory, etc., \$267,000; Sage Chapel, \$31,000; chairs of ethics and philos., \$261,000; library building and endowment, \$560,000; other donations, \$58,000: total \$1,177,000. In Brooklyn he was a leading and active member of Plymouth Church.

SAGE, LE: see LE SAGE, ALAIN RENÉ.

SAGE-COCK: see COCK OF THE PLAINS.

SAGGER, n. *säg'ger* [prov. Eng. *saggard*; a probable corruption of *safeguard*]: a clay used to make the pots in which earthenware is baked; the pots are then called *saggers* or *seggars*.

SAGHALIN, *sá-gá-lén'*, or SAKHALIN, *sá-chá-lén'* (often written SAGHALIEN; native name *Karaftu* or *Karafuto*): long and narrow island, extending from n. to s., close off the shores of Asiatic Russia, in the s.w. of the Sea of Okhotsk; lat.  $45^{\circ} 54'$ — $54^{\circ} 24'$  n.; 670 m. long, 20 to 150 broad; 24,560 sq. m. It formerly belonged partly to Russia, partly to Japan, but the whole island now belongs to Russia, Japan having surrendered its portion 1875. In lat.  $52^{\circ}$  the island approaches within six m. of the mainland, from which it is separated by the shallow Mamia Strait, or Strait of Tartary. A mountain chain with craggy summits, which in lat.  $52^{\circ}$  are covered with snow throughout the year, traverses the island from n. to s. There are no important natural harbors. The chief rivers are the Ty, falling into Patience Gulf, 90 ft. wide and 7 ft. deep at its mouth, and the Tymy, flowing n.e. The rivers and the coasts swarm with fine fish. Immense stores of fish are preserved in a frozen state during winter, on which in great part the natives and their dogs subsist. On the e. coast of the island, the vegetation, especially in the n., is stunted. On the w. coast, grass clothes the valleys, and forests of pine, fir, birch, larch, oak, and maple cover the mountains. Among animals are the reindeer, the stag, roe, elk, and musk ox. The climate is very cold; in the n. part of S. it is even more rigorous than at Nikolaevsk (q.v.). At Aniva Bay, in the s., the coldest day in the winter of 1853–4 showed a temperature of  $-13^{\circ}$  F. Coal has been discovered in several localities. See Ravenstein's *Russians on the Amur* (1861); *Proc. Geog. Soc.* (1882).—Pop. (1872) 13,000.

## SAGHALIN ULA HOTUN—SAGINAW.

SAGHALIN ULA HOTUN, *sâ-gâ-lén' ô-lâ' ho-tôn'* (now usually and more properly AIGUN): town of Manchuria, on the right bank of the Amur, 14 m. below the junction of the Dzeya with it; lat.  $50^{\circ} 15'$  n., long.  $127^{\circ} 40'$  e. It is the chief place of the Manchus on the Amur, and is sombre in appearance, though it has many gayly painted temples. The great quadrangle, containing the govt. and other buildings, is 230 yards sq., and is surrounded by double rows of palisades. Paper lanterns hang across the streets, and fantastic figures—dragons, etc.—cut in paper, are fixed to poles above the shops. Millet, tobacco, and other products are grown in the vicinity for export. Pop. 15,000.

SAG HARBOR: village on the n. side of Long Island, in Suffolk co., N. Y.; on Gardiner's Bay and the Long Island railroad; 10 m. s. of Greenport, 100 m. e.-by-n. of New York. It is a port of entry and the principal marketing-place in e. Long Island; has an excellent harbor and considerable commerce by rail and water; contains cotton, leather, cigar, and watch-case factories, steam flour-mills, 6 churches, 1 state bank, 1 savings bank (surplus \$104,039), 1 private bank, and 2 weekly newspapers; and is becoming popular as a place of summer residence. Pop. (1880) 1,996: (1890) not reported; (1900) 1,969.

SAGINAW, *sâg'i-naw*: city, cap. of Saginaw co., Mich.; on both sides of the Saginaw river, 18 m. s. of Saginaw Bay; and on the Michigan Central, the Flint and Pere Marquette, and the Detroit Lansing and Northern railroads; 64 m. n.e. of Lansing, 100 m. n.w. of Detroit;  $14\frac{1}{2}$  sq. m. The river is here navigable for the largest lake craft, and is crossed by three bridges. Since the consolidation act of 1890, Mar. 3, the city has included the former cities of Saginaw City and East Saginaw, which are connected by several lines of street railroad. East Saginaw was well laid out, substantially built, and provided with water on the Holly system; Saginaw City was built on a plateau 30 ft. above the river, with a similar water system and thorough drainage. The former city had a large trade by rail and lake in lumber and salt, the car-shops of the Flint and Pere Marquette railroad, and several machine-shops; and the other, excluding saw-mills and salt-works, had the most important and varied manufactures. Together there were more than 30 m. of paved streets and avenues, 30 m. of sewers, 60 m. of water mains, 26 saw-mills, 10 salt-works, 8 shingle-mills, 3 planing-mills, 11 carriage factories, bale, box, drum, hoop, and ax factories, boiler-works, tannery, flour-mill, and boat-building plant. In 1890 the manufacturing establishments yielded products valued at \$32,000,000, and the wholesale and jobbing business yielded about \$15,000,000; the net public debt 1902 was \$1,263,175 (\$909,700 in 1890); assessed valuation of property \$22,815,089; tax rate \$1.93 on \$100. In 1902 there were in the united cities 2 nat. banks (cap. \$300,000), 4 state banks (cap. \$400,000), 2 private banks, 30 churches, 22 public-school buildings (cost \$450,000), 8 private schools, 4 public libraries (including the Hoyt, founded

## SAGINAW—SAGO.

on a \$100,000-bequest of Jesse Hoyt, and opened 1890), and 2 daily and 5 weekly periodicals. E. Saginaw, which was the largest of the two cities prior to the consolidation, was inhabited by straggling half-breeds 1847. In that year Curtis Emerson located at what is now known as the 'South End.' In 1849 Norman Little, agent for Jesse Hoyt and a syndicate of New York capitalists, located 'Hoyt's plat,' on which the leading business houses now stand, and began establishing a village. The first permanent settlers were New York families. The place grew rapidly, fostered by excellent railroad and lake facilities for trade, and received a city charter 1859.—Pop. Saginaw City (1870) 7,460; (1880) 10,525; East Saginaw (1870) 11,350; (1880) 19,016; united cities (1890) 46,169; (1900) 42,345.

**SAG'INAW BAY:** arm of Lake Huron, indentation of the shore of Mich.; 60 m. long by 30 wide, with several fine harbors. The river Saginaw falls into it.

**SAGITTA**, n. *să-jĭt'ĕ* [L. *sagitta*, an arrow or dart]: the Arrow; one of the old constellations. **SAGITTAL**, a. *săj'it-tăl*, pertaining to or resembling an arrow. **SAG-ITTA'RIUS**. n. *-tăr'ĕ-üs* [L. *sagittarius*, an archer]: one of the 12 signs of the zodiac, which the sun enters on Nov. 22. **SAG-ITTARY**, a. *-tér'-ĕ*, pertaining to an arrow: N. a centaur, a fabled animal, half man, half horse, armed with a bow and quiver. **SAG-ITTATE**, a. *-tăt*, in bot., shaped like an arrow-head. **SAGITTAL SUTURE**, in *anat.*, the suture which unites the parietal bones of the Sagittate Leaf. skull.

**SAGIT'TA:** small marine worm, type of the archaic group *Chætognatha*.

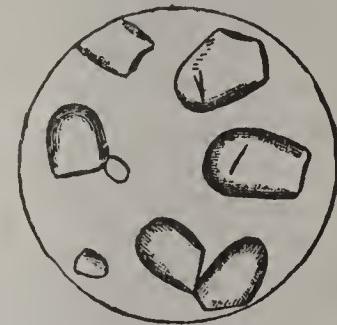
**SA'GO:** nutritive substance obtained from several species of palms, especially the *Metroxylon Sagu*, which abounds in Ceram and on the w. coast of New Guinea: it grows also in Sumatra, Borneo, Celebes, Timor, Buro, and other islands of the Indian Archipelago. In many of these islands, sago is the chief article of food, and by the Alfoers and Papuans is made either into a gruel or baked into cakes. The sago-tree is first a shrub with several upright green branches, which, at their lower parts, are covered with thorns. After three years, these branches form one stem, and the thorns gradually disappear. The tree attains a height of 40 to 60 ft., and within the ligneous bark it is filled with fibres and flour. It first blooms when 10 to 15 years old, according to the nature of the soil, flourishing best in a moist situation. After blooming, the flour transpires through the pores of the leaves, indicating that the tree is ripe: the tree must then



Sago-palm (*Sagus laevis*).

## SAGOUIN—SAGUA-LA-GRANDE.

be cut down within a year, or the flour will be lost. The stem is cut into lengths, split open, and the pith dug out and placed in a vessel with a sieve bottom. Water is applied to separate the flour and to carry it into a second vessel, where it is soon deposited. The water is then run off, and the flour dried and put into little baskets made of sago leaves. The product of a tree averages 750 lbs. A large quantity of sago flour is annually sent from n.w. Borneo, n.e. Sumatra, and Siak, to Singapore, the leading market, where it is purified and fitted for use as starch in the calico and other manufactures. In Borneo, much of the sago is granulated; and the Chinese of Malacca prepare pearl-sago which also is sent to Singapore. Pearl-sago is in small pearly-white spherical grains, varying in size from that of a poppy-seed to a grain of millet. Granulated sago also is in round grains, but larger. There are several varieties which differ much in color, some being white and others reddish-brown like radish seed. One kind of granulated sago from India has been exported under the name tapioca. The method of pearlizing and granulating sago is not known to Europeans. S. is not entirely soluble in hot water, like ordinary starch, and can therefore be employed in making puddings, etc., and in this way forms a valuable article of food, being cheap, light, nutritious, and easy of digestion.



Sago-starch (magnified 100 diameters).

SAGOUIN, *ság'ō-in* (*Callithrix* or *Saguinus*): genus of S. Amer. monkeys, having a long but not prehensile tail, a small and rounded head, short muzzle, large ears, and fine fur. They are small, and very active and graceful in their movements, and are sometimes called *Squirrel Monkeys*. They are very gentle, and when tamed become strongly attached to their masters. The SIAMIRI, or TEE-TEE (*C. sciureus*), native of Brazil and Guiana, is one of the best-known species.

SAGRA, n. *ság'ra* [Gr. *Sagras*, a river of Bruttium, on the east coast of the peninsula]: in entom., the typical genus of the *Sagridae*, a family of *Eupoda*. They have greatly developed hind legs, and are called in consequence kangaroo beetles. Their colors are brilliant red, purple, or green. Found in the tropics of Asia and Africa.

SAGUA-LA-GRANDE, *sá'gwá-lá-grán'dá*: town of Cuba, on the river Sagua, about 12 m. from its mouth, on the n. coast of the island. It is a town of considerable importance, connected by railway with Villa Clara and other places. Pop. about 10,000.

## SAGUENAY—SAGY.

**SAGUENAY**, *ság-e-ná'*, RIVER: large river of Canada, falling into the estuary of the St. Lawrence, on the n. side, about 115 m. below Quebec. It drains the Lake of St. John, which is nearly circular and almost 30 m. in diameter. Its course from that lake to the Gulf of St. Lawrence is about 100 m., almost straight. It flows between precipitous cliffs, has numerous cataracts in its upper part, and is in many places two or three m. broad. In the lower part of its course, it is less wide, but very deep, and large ships ascend it more than 60 m. to load with timber from the settlements on its banks. Its scenery toward the mouth is wonderfully grand, with vast precipices of rock overhanging immense depths; and attracts great numbers of visitors.—The name S. is sometimes given also to the principal river which falls into Lake St. John, and known to the Indians as the Chomouchouan and as the Assouapmoussoin. It rises about 200 m. w. of Lake St. John. The average depth in mid-channel is 145 fathoms.

**SAGUE'RUS**: see GOMUTO.



Sagum.

**SAGUM**, n. *ság'güm* [L.]: in anc. *Rome*, the military cloak worn by common soldiers and inferior officers, made of wool, and open in front, and usually fastened across the shoulders.

**SAGUNTUM**, *sá-gün'tüm*: wealthy and warlike town of anc. Spain, in Hispania Tarraconensis, which stood on an eminence near the mouth of the Pallantias (modern Palancia); its site is now occupied

by the town of Murviedro (q.v.). Founded (according to Strabo) by Greeks from Zacynthus, it early became notable by its commerce, and attained great wealth. But it owes its historical place to its siege and destruction by the Carthaginians, under Hannibal, b.c. 218. Having withstood the siege for the greater part of a year, against an army of about 150,000 men, led by a general of consummate ability and indomitable resolution, the Saguntines, now most severely pressed by famine, ended with an act of heroic defiance and self-sacrifice a resistance that had been characterized by brilliant valor. Heaping their valuable effects into one vast pile, and placing their women and children around it, the men issued forth for the last time against the enemy; and the women, setting fire to the pile, cast themselves upon it, with their children, and found in flames the death which their husbands met in battle. The destruction of S. directly led to the second Punic war. The Romans restored the city, and made it a colony.

**SAGY**: see under SAGE 2.

## SAHARA—SAID.

SAHARA, *sâ-hâ'ra*: in its widest and usual sense, the immense tract extending e. from the Atlantic across Africa, on both sides of the Tropic of Cancer; for which, see AFRICA. But the term S. is more correctly applied to a region of far less extent. The natives divide Africa n. of the equator into three portions—the Tell, the Sahara, and the Desert. The Tell extends from the Mediterranean to the Atlas Mountains; the Sahara, from the Atlas to the s. region, where all regular supply of water fails; and the Desert, from the s. and indefinite frontier of the S., s. almost to the watershed of the Niger, comprising a district salt and arid, inhospitable to man and beast, though the camel may even here snatch a scanty subsistence. As to physical geography, the S. may be sub-divided into the following districts: 1. The Hauts Plateaux, or Steppes, series of high levels skirting the base of the Atlas Mountains. 2. The land of the Dayats, or waterless oases, stretching s. to the high lands on the s. bank of the Wed Mzi or Djidi. 3. The region of the southern oases, s. of the former, and extending s. till it loses itself in the Desert. The scheme of flooding the natural depression in the w. S. as a commercial water-way to the interior has been criticised as of doubtful possibility. The French govt. 1880–1 had a party exploring a route for a trans-Saharan railway to unite Algiers with the Senegal and Niger region.—Pop. of S. estimated about 2,850,000.—See H. B. Tristram's *Great Sahara*; Nachtigal's *Sahara and Sudan* (1879).

SAHARANPUR, *sa-hâr-an-pôr'*, or SUHURUNPUR, *sô-hûr-ün-pôr'*: town of Brit. India, N. W. Provinces; the chief place of the dist. of S. It is in a plain in n. lat.  $29^{\circ} 58'$ , and e. long.  $77^{\circ} 36'$ , about one m. e. of the Doab canal. It has a large fort, a military cantonment, and a govt. depot. S. is about 1,000 ft. above the sea, and the climate is temperate during great part of the year: S. was therefore chosen as a suitable situation for a botanic garden (1817) for plants requiring more temperate climate than that of Calcutta. S. is described as one of the most handsome Brit. stations in India. Pop. (1891) 63,194.

SAHIB, n. *sâ'ib* [Ar. *sahib*, lord, master]: in India, usual designation and address of a respectable European, equivalent to Mister, Sir, etc. In Bengali and Mahrati, the word assumes the form *Saheb*. SAHIB-LOG [Skr. *log*, people]: Europeans. SAHIBA, n. *sâ'ib-a*, a lady; a mistress. MEM-SAHIB, n. *mêm-sâ'ib* [Anglo-Indian]: a white lady.

SAHLITE, n. *sâ'lît* [*Sahla*, in Sweden, and Gr. *lithos*, a stone]: a massive variety of augite of a dingy-green color.

SAIC, n. *sâ'ik* [Turk. *shâika*: F. *saïque*]: a Turkish or Grecian sailing-vessel, common in the Levant.

SAID, v. *sêd* [from SAY, which see]: pt. and pp. of the verb say; uttered; declared; reported; before-mentioned.

SAID, n. *sâ'id* [Ar. a prince]: a descendant of Mohammed through his daughter Fatima and his nephew Ali; a scherif or emir.

## SAIDA—SAIGON.

SAI'DA: see SIDON.

SA'TID PASHA': see EGYPT.

SAI'GA: see ANTELOPE.

SAIGO, or SAIGO TSUKUMICHI (SAIGO THE YOUNGER): soldier: b Satsuma, Japan, about 1836. He was prominent in the suppression of the rebellion against the mikado 1868; was commander of an expedition to Formosa 1874, remained for 6 months, and reduced the cannibals to subjection; was in the United States 1876 as head of the Japanese commission at the Centennial Exhibition, and the following year commanded a force which suppressed the Satsuma rebellion. He was afterward commander-in-chief of the army of Japan.—His brother, S. TAKAMORI, soldier (b. Satsuma, about 1827), was one of the leaders of the movement which resulted in establishing the monarchy, led the mikado's army 1868, became marshal of the imperial army 1873, established at Satsuma schools for military instruction, and was the leader 1877 of the Satsuma rebellion. After a desperate war against overwhelming odds, his whole force was destroyed or committed suicide, in the battle of Shiroyama.

SAÏGON, *sī-gon'*: one of the finest river-ports in Asia, cap. of the French possessions in Lower Cochinchina; on the small river S., about 35 m. from the Chinese Sea. The city is fortified, and its value as a strategical position is unquestionable. By land it is defended from attack by many miles of jungle and swamp, and the approach from the sea on the s., by the fine river Dong-nai, could easily be rendered impassable to the strongest fleet. The entrance to the Dong-nai is at Cape St. Jacques, and its winding course to the city, through a rich level country, is 50 to 60 m. in length, defensible by fortifications at every point. It is of easy navigation, and of sufficient depth to allow vessels of heaviest burden to sail close to its banks under the overhanging foliage. The breadth of the river from S. to the sea, generally 1,200 ft. or more, varies little; it is joined on both sides by many large affluents, and is the main channel of a river system that covers the whole country s. of the cap. with a network of water-courses. The city of S. is fortified, and is defended by a permanent force of several large ships of war and a garrison of 10,000 men. S. consists of two parts: the Chinese town, four m. inland, filled with an active trading population; and the European or fortified town on the banks of the Saïgon. The latter is of considerable size. Good roads have been constructed for miles around; and there are barracks, hospitals, official residences, and other public buildings. The soil is abundantly fertile, admirably suited to production of cotton, sugar, indigo, and tobacco, besides rice, the principal export. The surrounding forests contain magnificent timber, and abound in woods rich in dyes. There is a naval yard and arsenal. Pop. (1890) 56,138.

S., with part of the territory of which it is cap., was taken by the French 1860. Treaties of peace and commerce, concluded with the Annamite govt. 1864, provided that the

## SAI-KIYO—SAIL.

protectorate of the six provinces of Lower Cochinchina should remain in the hands of France; that three important ports on the coast of Anam should be opened, and that a space of nine kilometres on the shore of each port should be conceded to the French for factories; that French merchants and missionaries should be allowed to traverse the kingdom of Anam without hindrance; and that an indemnity of 100 millions of francs should be paid. In 1867, in consequence of fresh aggressions, encouraged by the govt. of Anam, the French took the town of Vinh-long, and, by a new treaty, added three other provinces to their dominions, which now extend from 9° 5' to 10° n. lat., and from 105° to 107° e. long. The revenue of the colony is about 15,000,000 francs (\$2,900,000). The yearly imports and exports are each about 12,000,000 francs (\$2,316,000).—Pop. of the territory (1878) 1,592,000; (1901) 2,968,529.

SAI KIYO, *sī-kē'yō*, or MIA'KOS: ancient cap. of Japan: see KIOTO.

SAIL, n. *sāl* [Ger. *segel*; Icel. *segl*, a sail: Dut. *zeil*: comp. Gael. *seol*, to sail]: sheet of strong canvas which, when spread out on the mast or yard of a ship, catches the wind and impels it through the water—there are many sails in a ship, and each one has a different name (see below): a ship or ships; an excursion in a ship; in poetry, wings: V. to be moved or impelled by the force of the wind on sails, as a ship on water; to be conveyed in a vessel; to begin a voyage; to float or pass smoothly along; to fly without striking with the wings, as a bird. SAIL'ING, imp.: N. act of moving on water, as a ship; art of directing a ship by means of a chart (see SAILINGS): act of setting sail SAILED, pp. *sāld*. SAIL'ER, n. -*ér*, a vessel with reference to her speed or sailing qualities. SAIL'OR, n. -*ér*, a seaman; a mariner. SAIL'LESS, a. -*lēs*, without a sail. SAILCLOTH (see below). SAILING-MASTER, the officer who directs the navigation of a ship of war—now called *navigating lieutenant*. SAIL-YARD, a yard or spar on which a sail is extended. To LOOSE SAILS, to unfurl them. To MAKE SAIL, to extend an additional quantity of sail. To SET SAIL, to begin a voyage. To SHORTEN SAIL, to take in a part of the sails. To STRIKE SAIL, to lower the sails suddenly. FULL SAIL, with all sails set. UNDER SAIL, having the sails spread.

## SAIL.

**SAIL**, on a Vessel: expanse of canvas, matting, or other strong material, on which the wind may exert its force and propel the vessel. A sail is extended by means of a mast or yard, or both. It may be of various shapes, and of any size, according to the carrying power of the vessel. A vessel of shallow draught or of narrow beam can bear comparatively little sail; while a vessel of proportionately

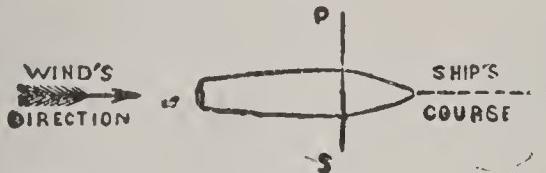


Fig. 1.

deep draught and heavily ballasted—as a **yacht**—or a vessel of great breadth of beam, can carry sail of great area. A sail acts with the greatest power when the wind is directly astern, as in fig. 1; but it can be applied, though with less strength, when on either beam. The action of the wind on an oblique sail is a good example of the resolution of forces: see COMPOSITION AND RESOLUTION OF FORCES, etc. Let TD, fig. 2, be a ship, PAS its sail, WA the direction of the wind, and let the length of WA represent the pressure of the wind on the sail. WA can be resolved into AB perpendicular to the sail, and BW parallel to it, the latter of which has no effect in pressing on the sail; therefore AB is the effective pressure on the sail. Were the vessel round, it would move in the direction BA.

Let BA be resolved into CA and BC, the former, CA, acting in the direction of the keel or length of the vessel, or in the direction CAD, and the latter perpendicular to it, or in the direction of the breadth. The former pressure, CA, is the only pressure that moves the vessel forward, the other, BC, makes it move sideways. From the form of the vessel, however, this latter force, BC, produces comparatively little lateral motion; any that it does occasion is called *leeway*. It results, therefore, that with the wind exerting an oblique pressure, the actual pushing or propelling effect will be to the power of the wind only as CA to WA. A vessel with a side wind makes better progress than with the wind exactly aft. All the sails draw and seem to work to better advantage with a side wind.

In the East and the Mediterranean, sails are frequently of strong matting; but among northern nations, and for ocean navigation, very strong cloth, or canvas, called *sail-cloth*, is the usual material. In the U. S. it is termed *duck* and is rated by weight per sq. yard. It is woven narrow; and the many breadths in the sail are joined by carefully made double seams.

Sails are nearly always either triangular or quadrilateral, but not necessarily equiangular. The commoner forms

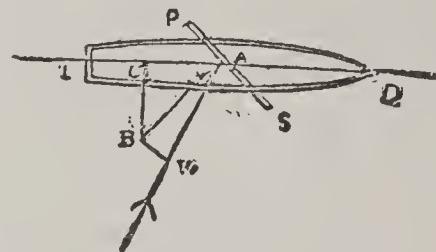


Fig. 2.

## SAIL.

are shown in fig. 3. To give greater strength, a strong rope or cord is sewn into the outer edge all round the sail; this rope has eyes in it, to which the various ropes employed in connection with the sail are fastened. The top of a sail is its *head*; the bottom, its *foot*; and the sides are *leeches*; the *front* or *fore-leech* is sometimes called the *luff*; the upper corners are termed *earrings* or *head-earing cringles*; the lower corners of a square sail, and the after lower corner of other sails, *clews*; the front lower corner of a fore-and-aft sail is the *tack*. The ropes from the lower corners, used in tightening the sail against the wind, are the *sheets*.

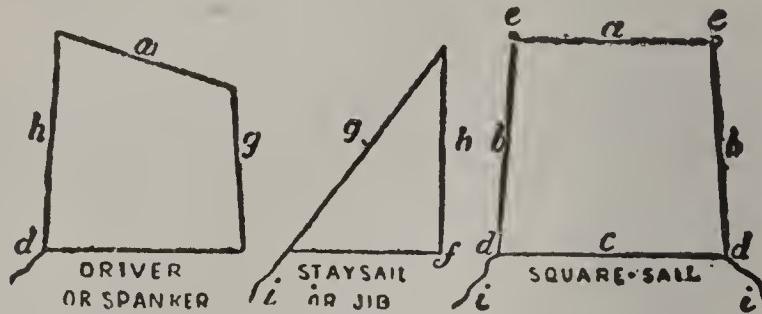


Fig. 3.

*a.* head; *b*, leech; *c*, foot; *d*, clew; *e*, earrings; *f*, clew; *g*, fore-leech; *h*, after-leech; *i*, sheet.

The sails of a ship are either 'square' or 'fore-and-aft.' The square-sails—beginning from below—are the *course*, the *topsail*, the *topgallant-sail*, the *royal*, and, though not always used, the *sky-sail* or *sky-scaper*. For these sails five yards are required. But as a general rule double topsails, one above the other, are now used, and on large ships double top-gallant sails are often carried. This gives several yards to the mast. Each has the name of the mast on which it is set prefixed, as 'fore-topsail,' 'main-royal,' etc. The square sails are made fast by their heads to yards, the foot being drawn to the extremity of the yard below. Fore-and-aft sails are the *spanker* or driver, extended by the gaff at its head, boom at its foot, and mast on its fore leech; the *staysails*, which are suspended by rings to the stays, and the *Jibs* (q.v.). In a three-masted vessel, the sails of most importance are the main-course, the spanker, the topsails, the fore-staysail, and the jibs, which can usually all be distended to the full without taking wind from each other. In very light winds, when every breath is of consequence, the area of the sails is increased by setting the *studding-sails*, which are oblong sails set on each side of the square-sails, on short booms run out beyond the yards of the latter. Studding-sails are very little used now. Fig. 4 represents a square-rigged ship, with the whole of her canvas shown.

In small craft and boats, a common sail, particularly in England, is a lugsail (see LUGGER), which is a small square-sail, occasionally supplemented by a shoulder-of-mutton (triangular) sail on a shorter mast at the stern. Cutters or sloops carry a large spanker or mainsail, with a topsail of similar shape, or almost triangular, and jibs; some having the power of setting a large course or square sail

## SAIL.

when the wind is astern; but it is obvious that the course and mainsail cannot be used together. A schooner uses the same sails on each mast as a cutter, except that, in one form, she carries a square topsail and topgallant-sail on the foremast.

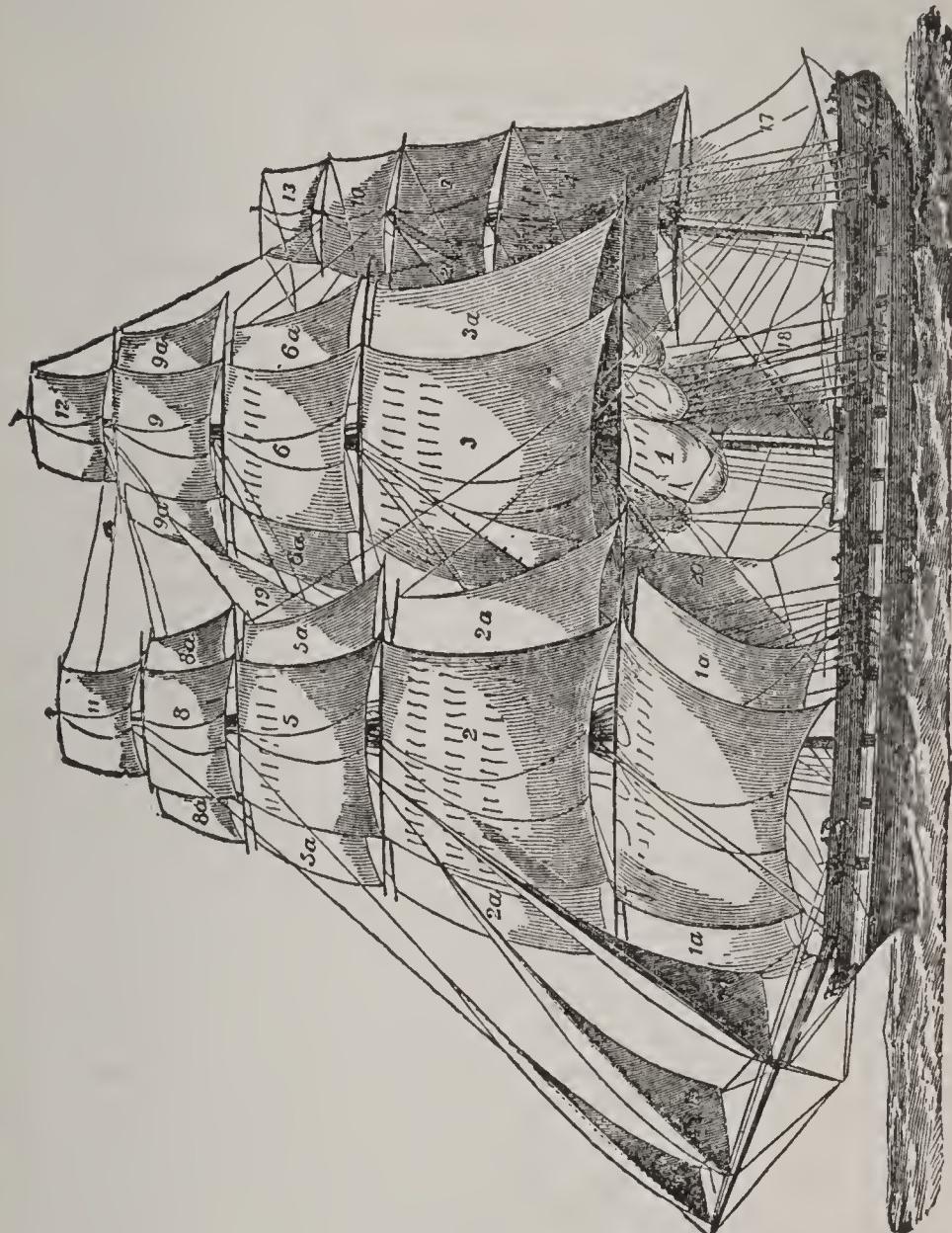


Fig. 4.

- 1, Course; 1a, Studding-sails; 2, Fore-topsail; 2a, Studding-sails; 3, Main-topsail; 3a, Studding-sails; 4, Mizzen-topsail; 5, Fore-topgallant sail; 5a, Studding-sail; 6, Main-topgallant sail; 6a, Studding-sails; 7, Mizzen-topgallant-sail; 8, Fore-royal-topsail; 8a, Studding-sails; 9, Main-royal-topsail; 9a, Studding-sails; 10, Mizzen-royal-topsail; 11, Fore-skysail-topsail; 12, Main-skysail-topsail; 13, Mizzen-skysail-topsail; 14, Fore-topmast-staysail jib; 15, Jib; 16, Flying jib; 17, Mizzen spanker; 18, Spenser; 19, Main-royal-staysail; 20, Main-topmast-staysail; 21, Mizzen-topgallant-staysail.

Sails are furnished with rows of short ropes for the purpose of *reefing* them, when their area is too large for the wind. The effect of a sail is increased by wetting it, as the pores of the canvas close more tightly through the swelling of the hemp.

## SAIL-CLOTH—SAILINGS.

**SAIL'CLOTH:** very strong fabric, woven in Britain with linen yarn, but in the United States it is made very generally of cotton; and in Britain, under Armitage's patent, of cotton and linen mixed. Hair—such as of the ox, horse, and deer—also has been used (1832), but without success. Linen and hempen cloths are those generally used in most parts of Europe. For light yachts' sails silk has been employed. In the U. S. navy the sailcloth was of flax, in breadths 20 inches wide.

**SAILINGS:** technical name in navigation for the various modes of determining the amount or direction of a ship's motion, or her position after having sailed a given distance, in a given direction. The direction of a ship's motion is her *course*, and is expressed in terms of the angle between the line of direction and the meridian; the length of her path is the *distance*; the distance in nautical miles, made good to the e. or w., is the *departure*, and is measured along a parallel; the *difference of latitude* is an arc of the meridian intercepted by the parallels, one of which passes through the place sailed from, and the other through the place sailed to; and the *difference of longitude* is an arc of the equator intercepted by meridians through the same two places. It is evident that if a ship sails along a meridian, the difference of latitude becomes the course, and there is no departure or difference of longitude; and that if it sails along a parallel the departure will be the same as the distance, and there will be no difference of latitude. The two general questions which present themselves to the navigator for solution are—1. Given the course and distance from one place in given latitude and longitude to another place, find the latitude and longitude of the other; and 2. Given the latitude and longitude of two places, find the course and distance from the one to the other. The simplest way in which such problems can be solved is by the method known as *plane sailing*, a method, however, only roughly approximate, assuming, as it does, that the surface of the sea is a plane; it is consequently applicable only to short distances and low latitudes where the meridians are nearly parallel. According to 'plane sailing,' the elements of a ship's path are represented by a right-angled plane triangle, as ABC (fig.), where AB is the distance, the angle BAC the course, AC the difference of latitude (AC being a portion of a meridian, and BC of a parallel of latitude), and BC the departure. The two problems given above are in this method merely simple cases of the resolution of a right-angled plane triangle (see TRIGONOMETRY), for if the course and distance are given, the *dif. of lat.* =  $\text{distance} \times \cos. \text{ of course}$ , and *dep.* =  $\text{dist.} \times \sin. \text{ of course}$ ; while the idea of *dif. of long.*, as distinct from *dep.*, is quite inadmissible, since the method presupposes that the ship is sailing on an absolutely flat plain. If the ship does not stand on one course, but changes from time to time, the calculations of her final position



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## SAILINGS.

may be effected, either by the previous method, repeated for each change of course, or more conveniently, by the method of *traverse sailing*. This method consists in the resolution of a ship's course and distance into two courses and distances, the courses being in the direction of some of the four cardinal points of the compass; thus, a ship which has sailed s.w.-by-s. 24 m., has made 20 m. of *southing*, and 13·3 m. of *westing*. The *traverse table* has consequently six columns, the first containing the courses; the second, the corresponding distances; while the third and fourth contain the difference of latitude for each course, which, if n. is put in one column, and if s. into the other; the fifth and sixth columns, marked respectively e. and w., contain in a similar manner the departure for each course. When the table has been made out for the various courses and distances, the columns of dif. of lat. and departure are summed up, and the difference between the third and fourth, and between the fifth and sixth columns, gives the dif. of lat. and departure between the place sailed from and the place arrived at, from which the course and distance made good can be calculated as before. When a current interferes in any way, either by accelerating or retarding the ship's motion, its effect is estimated as in traverse sailing, as if it were one course and distance, the *set* of the current being the course, and its *drift*, i.e., its rate per hour multiplied by the number of hours it has affected the ship, the distance.

*Parallel Sailing* may be employed when a ship sails between two places, on the same parallel of latitude, in which case, if her head be kept accurately and constantly in an e. or w. direction, she will describe an arc of the parallel between the two places. As in this sailing the departure is the same arc of the parallel that the difference of longitude is of the equator, the *dep.* (which is now the *distance*) = *dif. of long.*  $\times$  *cos. of lat.* The other elements are found as in plane sailing.

*Middle Latitude Sailing* is the application of the principle of parallel sailing to the case in which the ship's course is not perpendicular but oblique to the meridian; it is merely an approximate method, coming very close to a true estimate in low latitudes for any course, and in all latitudes for a course nearly e. and. w. (i.e., one in which the distance is large as compared with the difference of latitude); but erring widely under other circumstances, though errors may be diminished as much as we please by dividing the distance into portions, and calculating the dif. of long. for each. The object of this sailing is to deduce the dif. of long. from the dep., and *vice versa*, on the supposition that the whole departure has been made good along the parallel of latitude which is equidistant from each extremity of the course, a method which, at first sight, seems to give a correct result, and would do so if the parallels of latitude increased uniformly, which they do not. The dep., when laid off along the parallel of middle latitude, always gives the dif. of long. too small, and hence the limitations above noticed. When the latitudes are of the same name, the

## SAIMIRI—SAINFOIN.

middle latitude is half their sum; but when of contrary names, it is better to find the dif. of long. for the portion on each side of the equator separately, the two middle latitudes being respectively half the latitude of the place sailed from, and half that of the place sailed to. The formulas are the same as for parallel sailing and plane sailing..

*Mercator's Sailing* is a perfect method of obtaining the same result as is found approximately by middle latitude sailing, but in the former case the dif. of long. is found from the departure, while in this method, the difference of latitude is employed for the same purpose. A table of meridional parts, as it is called, is necessary; this table shows the number of minutes in Mercator's projection (see MAP) corresponding to each degree and minute of latitude up to  $78^{\circ}$ , and is employed as follows: The latitude sailed from, and that reached, being known or found, the meridional parts for each are obtained, and their difference, if the latitudes are of the same name, or sum, if of opposite names, gives the dif. of lat. We have then a right-angled triangle, with the dif. of lat. and dif. of long. forming the two smaller sides, and the vertical angle representing the course, whence  $\text{dif. of long.} = \text{dif. of lat.} \times \tan. \text{ of course.}$  This sailing is the one usually employed by navigators, but is inferior in practice to middle-latitude sailing, in the cases noticed under that head, for though it be a perfect, and the other merely an approximate method, yet a small error in the course (if large), or in the dif. of lat., becomes greatly magnified in the dif. of long.; while in the case of the latter, a considerable error in departure is hardly magnified, and a large error in the course (if nearly e. and w.) becomes imperceptible in the dif. of long. It is, however, better to work the problem according to both methods, and then estimate the true result as nearly as possible.

For *Great Circle Sailing*, the most perfect of all methods for finding a ship's course, see that title: see also SPHEROGRAPH.

The obstacles that interfere with the correctness of the mariner's calculations are chiefly those which affect his data, the course and distance, the more important being the magnetic deviation of the compass produced by the attraction of the ship, errors in the estimated leeway or in the set and drift of currents, etc.; all of which require to be taken into account. The necessity for frequently checking the *Dead-reckoning* (q.v.), by means of astronomical observations, is sufficiently apparent.

SAIMIRI: see SAPAJO.

SAINFOIN, n. *sān'foyn*, or SAINTFOIN, n. *sānt'foyn* [F. *sain*, wholesome—from L. *sanus*; F. *foin*, hay: Cotgrave writes *saint-foin*, holy hay—as if from L. *sanctus*, holy; but perhaps it is rather *sang-foin*, from the blood-color of the flowers], (*Onobrychis sativa*): plant of nat. order *Leguminosæ*, sub-order *Papilionaceæ*, of a genus nearly allied to *Hedysarum* (see FRENCH HONEYSUCKLE), but having one-seeded pods, marked with wrinkles or pits and more or less prickly-toothed at the margin. It is a spreading perennial, 2 or 3 ft. high, with leaves of 9-15

## SAINT.

smooth acute leaflets, and spikes of beautiful flesh-colored flowers, striated with rose-red, on long stalks. It is a native of the continent of Europe and of s. England, but was grown in France earlier than in England, where its cultivation was commenced 1651. It requires a rather warm



Sainfoin (*Hedysarum onobrychis*)

climate and thrives only in soils which contain lime. Seed should be sown at the rate of 4 bushels per acre broadcast, or three bushels in drills. It gives only a light crop the first year; but after that, in suitable soils, yields well for several years. S. can be used for green fodder or for hay: for the latter it should be cut as soon as it blossoms. It is rather difficult to cure. On account of its uneven ripening, it should, when grown for seed, be cut as soon as the lower part of the head, which produces the best quality, is mature.

SAINT, n. *saint* [F. *saint*; It. *santo*, a saint—from L. *sanctus*, holy]: holy person; one of the blessed in heaven; a title given to the apostles and certain eminent persons in eccles. history (see SAINTS); one canonized by the Rom. Cath. Chh.: in New Test. usage, the name applied to all Christian believers: V. to canonize; to act with a show of piety. SAINT'ING, imp. SAINT'ED, pp.: ADJ. sacred; holy; pious; virtuous; entered into everlasting happiness: N. a term sometimes used simply for ‘the dead.’ SAINT'LY, a. -ly, or SAINT-LIKE, a. resembling or becoming a saint. SAINTHOOD, n. the state of being a saint; the united body of saints. SAINTSHIP, n. the character or qualities of a saint. SAINT'S BELL: see SACRING BELL, under SACRING. ST. ANTHONY'S FIRE, erysipelas (see ANTONY, SAINT).

## SAINT—ST. AMAND

ST. CUTHBERT'S BEADS, popular term for the detached bead-like joints of the encrinites. ST. DOMINGO BARK (see CARIBBEE BARK). ST. GEORGE'S ENSIGN, distinguishing badge of ships of the Brit. navy, consisting of a red cross on a white field, with the union-jack in the upper quarter next the mast (see FLAG: UNION-JACK). The *white* St. George's ensign is (since 1864) the naval badge, the red and blue ensigns being left to other Brit. vessels. The ensign is borne at the peak; or in harbor on a flag-staff at the stern, as always in boats. ST. IGNATIUS'S BEAN (see IGNATIUS'S (ST.) BEAN: NUX VOMICA: STRYCHNOS). ST. JOHN'S BREAD (see CAROB). ST. JOHN'S WORT (see HYPERICACEÆ). ST. LUCIE BARK (see CARIBBEE BARK). ST. PETER'S FINGERS, an old and familiar term for *belemnites*, many of which have a finger-like form. ST. VITUS'S DANCE, disease affecting the muscles of voluntary motion (see CHOREA). SAINT-SIMONIAN, -*sī-mō'nī-ān*, follower of the Count de Saint Simon (see SAINT SIMON, CLAUDE HENRI, Comte de).

SAINT (abbreviated St.): [For names thus beginning, not found under this word, see the other part of the name].

ST. AFFRIQUE' (town, France): see AFFRIQUE, ST.

SAINT AL'BAN (British martyr): see ALBAN, SAINT.

ST. AL'BAN HALL, OXFORD, England: institution named from Robert de St. Alban, citizen of Oxford, who conveyed the building to the nuns of Littlemore, near Oxford, 1230. After several changes it was finally transferred to the warden and fellows of Merton College, and was established as an academical hall. The principal of this, as in the other four halls, is assisted by a vice-principal and other officers appointed by himself.

ST. ALBANS, *sānt awl'banz*: town, cap. of Franklin co., Vt.; on the Central Vermont and Mississquoi railroads; 3 m. e. of Lake Champlain, 32 m. n. of Burlington, 63 m. s. of Montreal. It is on an elevated plain, is supplied with water from a reservoir  $4\frac{3}{4}$  m. distant, which gives the water a fall of 300 ft.; has gas and electric lights; and contains a public park of four acres, 7 churches, graded public schools, public high school, several hotels, public library, 1 national bank (cap. \$100,000), 1 trust company (cap. \$40,000), and 1 daily and 2 weekly periodicals. The town is noted for large manufacture of butter, and for the locomotive and car shops of the Central Vermont railroad. It was raided by a band of Confederates from Canada 1864, who robbed the banks of \$208,000, of which \$88,000, captured on them by the Canadian authorities, were returned. Pop. (1890) 7,771; (1900) 7,954.

ST. AL'BANS (English borough): see ALBANS, ST.

ST. AMAND, *sāngt ā-mōng'*: town of France, dept. of Cher, on the right bank of the river Cher, 27 m. s.s.e. of Bourges. It has trade in iron. Pop. (1891) 7,895.

ST. AMAND': small town of France, dept. of Nord, 8 m. n.w. of Valenciennes. The town contains hot sulphur springs and lace, clay-pipes, and porcelain are manufactured. Pop. (1891) 8,703.

## ST. ANDREWS.

ST. ANDREWS: very ancient city in Scotland. Its antiquity appears by the number of prehistoric burial remains found here. Monkish tradition assigns the origin of the modern city to St. Regulus, who is said to have brought certain bones of St. Andrew to this place, which previously bore the names Muckross and Kilrimont. The bringing over of these relics is with more reason ascribed to the 8th c., but it seems that before end of the 6th c. a monastery had been founded here. In the 10th c. S. A. is said to have been the seat of the "Ardescop Albain," the high bishop of the Scots, and in the 11th c. he came to be called "the Bishop of St. Andrews." The Augustinian Priory, founded 1144, became the richest religious house in Scotland. The cathedral, more than 350 ft. in length, was founded about 1160, and consecrated in presence of Robert Bruce, in 1318, but was dismantled in 1559, and left to fall into ruin. The Bishop's Palace, now also a ruin, dates from 1200. Other ruins are the St. Rule's tower, which has been the subject of much discussion, the Black Friars' Monastery, etc. The celebrated University of S. A. dates from 1411, and had (1895) 2 colleges, 28 instructors, and 204 students, of whom 32 were women, for whose higher education the univ. is doing much; the library contains more than 100,000 vols. S. A. became a free burgh about 1150, and in the 16th c. was reckoned one of the chief mercantile cities of Great Britain, but has now only an unimportant and coasting trade and small fisheries. The town is a popular watering-place and summer resort, and is the headquarters of the game of golf, doing a thriving business in golf-clubs and golf-balls.—Pop. (1891) 6,853.

## ST. ANDREWS—ST. AUGUSTINE.

ST. AN'DREWS: town, cap. of Charlotte co., New Brunswick, between the mouth of the St. Croix river on the w. and Passamaquaddy Bay on the e.; 65 m. from Fredericton, 3 m. from the e. boundary of Maine. It is a port of entry, has a fine harbor with two entrances, and is the s. terminus of the New Brunswick railway. It is a somewhat noted summer resort, has several churches, a custom-house, postal savings bank and two other banks, a marine hospital, and one weekly newspaper. Agriculture and fishing are principal industries. Pop. about 2,000.

ST. AN'DREWS (city in Scotland): see ANDREWS, ST.

ST. AN'THONY (in Minn.): see MINNEAPOLIS.

SAINT ARNAUD': see LEROY DE SAINT ARNAUD.

ST. AUGUSTINE, *saint aw'güs-tēn*: city, port of entry, and cap. of St. Johns co., Fla.; on St. Augustine Bay 2 m. from the ocean, and on the Jacksonville Tampa and Key West, the St. Johns, and the St. Augustine and Palatka railroads; 36 m. s. of Jacksonville; considered the oldest city in the United States. Beside its historic memories and antiquities, it is best known as a popular winter resort and sanitarium, having a mean temperature of 70° and seldom any frost. It is connected with n. parts by lines of steam and sailing boats, has some coasting trade; and manufactures, chiefly, palmetto-straw goods. It is on a low peninsular plain, separated from the ocean by Anastasia Island; has a large and safe harbor with a high bar at its entrance; and was originally defended by Fort (or castle) San Marco, subsequently renamed Fort Marion. The city contains 1 national bank (cap. \$100,000), 1 daily and 3 weekly periodicals public library, court-house, Rom. Cath. cathedral, Peabody Institute, U. S. army barracks, several churches, and a number of hotels and winter boarding houses. The streets were originally very narrow and crooked, averaging 10 ft. in width, with principal ones 15-18 ft.; and the dwellings were two stories high, with second story curiously overhanging the first, and built of coquina, a sea-shell concrete. Within a few years New York capitalists have acquired large interests in the city and have done much to modernize it. It has a hotel as completely equipped as any metropolitan caravansary, and rendered far more attractive by oriental architecture and tropical surroundings; and a generous plan of local improvements has been inaugurated, which will heighten the contrasts in the ancient Spanish settlement. In his quest of the 'fountain of youth,' Ponce de Leon (q.v.) made a landing at or near S. 1512. Don Pedro Menendez de Aviles took possession of the region in the name of Philip II. of Spain 1565, Sep. 8, landing about 1,500 people from his fleet on the site of the city, and giving it its present name. The city and vicinity remained in the possession of Spain nearly 200 years, or till 1763, when the province was ceded to Great Britain. During the Spanish occupation the fort or castle of San Marco was built by native Indians and Mexican convicts, more than 100 years being passed in the work of construction, and the place attained considerable importance. At one time there was a pop. of more than 3,000, a milit. force of

## ST. AUSTELL—ST. BERNARD.

2,500, and nearly 1,000 dwellings of coquina. The Spaniards completed the fort 1756, and the U. S. govt. added a water battery 1842-3. The Spaniards also began building a sea wall for the city 1690 (remains of which are still seen), and the U. S. govt. built a very substantial wall with granite coping (cost \$100,000) 1837-43, which now forms a delightful promenade. The Rom. Cath. cathedral, begun 1793, has a bell dated 1682; the U. S. barracks was the old St. Francis convent; and the U. S. custom-house was the former palace of the royal Spanish governors. S. was burned by Sir Francis Drake (q.v.) 1586; was besieged by Gov. Moore of the Carolinas 1702; was an important British station during the Revolutionary war; saw the British flag lowered and the American flag raised 1821; and was an important milit. station during the Seminole Indian war 1835-42. Pop. (1870) 1,717; (1880) 2,293; (1890) 4,742; (1900) 4,272.

ST. AUSTELL, *sént aw'stél*: small town of Cornwall, England; 13 m. n.e. of Truro by railway. Woolen goods are manufactured; and at the Bay of St. A., about a mile distant, there is a pilchard-fishery, and tin and copper are exported. Pop. (1871) 3,803; (1881) 3,612; (1891) 3,477.

ST. BARTHOL'OMEW (island): see BARTHOLOMEW, ST.

ST. BEES, *sént bēz*: ancient village of Cumberland, England; pleasantly situated on the bay formed by *St. Bees Head*. It is 4 m. s. of Whitehaven, and about 10 m. beyond the limits of the Lake district. St. Bees is a station on the Whitehaven and Furness Junction railway. The parish is very large, comprising town and port of Whitehaven, village of St. Bees, and several chapelries and townships. The village of St. Bees contains about 1,100 inhabitants, and is in some repute as a sea-bathing place. According to tradition, preserved by the early chroniclers, St. Bees originated in a nunnery founded here 650, by an Irish saint named Bega, of whom Sandford's MS. (in the Dean and Chapter Library, Carlisle) records a very pretty legend. The nunnery appears to have been destroyed before the reign of Henry I., in whose time we find that Ranulph, Earl of Cumberland, reconstituted it as a priory; but after the dissolution of the monasteries, it went to ruin.—The institution known as ST. BEES COLLEGE was established 1816 by Dr. Law, Bp. of Chester, to supply a systematic training in divinity to young men desirous of ordination, whose means were inadequate to the expense of a univ. education. A portion of the ruined priory of St. Bees was fitted up by the Earl of Lonsdale as lecture-rooms, library, etc. The principal—perpetual curate of St. Bees—selects his own staff of lecturers. The college course comprises two years; and the standard English divinity works, with the Greek Test., are chiefly studied, and composition of sermons, etc. is practiced. The average number of students is about 100.

ST. BER'NA'DD, GREAT—ST. BER'NARD, LITTLE: see BERNARD, GREAT ST.

## ST. CATHERINE'S—ST. CLAIR.

**ST. CATHERINE'S**, *sānt kăth'ér-rĕnz*: incorporated town, province of Ontario, Canada; on the Welland canal, and on the Welland railway; 33 m. s. of Toronto, 12 m. from Niagara Falls. The town is very flourishing, and has large manufactures of machinery and agricultural implements. The surrounding country is picturesque. The well-known mineral well of St. C.'s, whose water is of great value as a remedial agent, supplies on an average 130,000 gallons a day. Of these waters, a large quantity, partially evaporated, is sent out through the country. A second well also is in use. St. C.'s has been called the Saratoga of Brit. America. Its hotels are equal to any in the province. Pop. (1881) 9,631; (1891) 9,170; (1901) 9,946.

**ST. CHARLES**: city, cap. of St. Charles co., Mo.; on the Missouri river, and on the Wabash, and the Cleveland St. Louis and Kansas railroads; 22 m. n.w. of St. Louis. It is one of the oldest settlements in the state, and from its elevated position commands an extensive view of country. The river is here spanned by an iron railroad bridge, which, with approaches, is 2 m. long and cost nearly \$2,000,000. The city is in a rich corn and wheat region, and has valuable limestone quarries and coal mines in its vicinity. It contains 13 churches, public library, Rom. Cath. convent school, St. Charles College (for males), Lindenwood Female Seminary (Presb.), several public, parish, and private schools, 1 national bank (cap. \$50,000), 2 savings banks (cap. \$100,000), and 1 daily and 5 weekly periodicals. The industrial establishments include railroad carshops, starch factories, woolen mills, iron foundries, breweries, steam flour-mills, and bridge-building works. S. was settled by the Spaniards 1769, and incorporated 1849. Pop. (1870) 5,570; (1880) 5,014; (1890) 6,161; (1900) 7,982.

**ST. CHRISTOPHER**: see CHRISTOPHER, ST.

**ST. CLAIR'**: borough in Schuylkill co., Penn.; on Mill creek and the Philadelphia and Reading railroad; 3 m. n. of Pottsville, 10 m. s.e. of Ashland. It is the shipping point for a group of the richest anthracite coal mines in the state; has several manufacturing establishments; and contains 8 churches, 3 graded public schools, public library, and several public halls. Pop. (1890) 3,680; (1900) 4,638.

**ST. CLAIR**, *sānt klär'*, ARTHUR: revolutionary officer: 1734–1818, Aug. 31: b. Thurso, Scotland; grandson of the Earl of Roslyn. After education at Edinburgh Univ., and studying medicine, he bought an ensign's commission 1757, and came to the N. Amer. colonies in the fleet of Admiral Boscawen. He had part under Gen. Amherst in the capture of Louisberg 1758, and under Gen. Wolfe of Quebec 1759, after which he retired from the army and lived in Ligonier Valley, Penn., where he held the offices of district surveyor, justice, etc. In 1775 he was present at the treaty made with the Indians at Fort Pitt; and, the next year, as col. of a Penn. regiment, he aided Gen. Sullivan in the retreat from defeat at Three Rivers. Appointed brig. gen. 1776, he took part in the battles of Trenton and Princeton. In 1777 he was made maj. gen., and was placed in command

## ST. CLAIR—ST. CROIX.

of Ticonderoga, but was compelled to evacuate by Burgoyne's superior force, which moved on the works by an approach that had been left unfortified. It was a severe disappointment to Washington and the patriots. Gen. St. Clair was, however, acquitted by a court-martial, and he continued in active service till the close of the war. He was member of congress 1785-87; its pres. 1787; gov. of the N. W. Territory 1789-1802; commander against the Indians on the Miami 1791, where he was surprised and lamentably defeated. The rest of his life he passed in poverty, relieved by tardy pensions. He died at Chestnut Ridge, Penn.

**ST. CLAIR RIVER:** outlet of Lake Huron, also discharging the waters of Lakes Superior and Michigan; connecting Lake Huron with Lake St. Clair, and forming part of the boundary between Mich. and the province of Ontario, Canada. It flows s. through a fertile region, enters Lake St. Clair by six channels, of which the one on the Mich. side is used for navigation; is about 40 m. long,  $\frac{1}{2}$  m. wide, and 40-60 ft. deep; is navigable for large steamboats; and has two important towns on its course, Port Huron, Mich., and Sarnia, Canada. These towns have been connected by a remarkable railroad tunnel beneath the river, constructed to unite the tracks of the Grand Trunk railroad, of Canada, with the Chicago and Grand Trunk, the Detroit Grand Haven and Milwaukee, and the Toledo Saginaw and Muskegon railroads, in the United States. The tunnel was built of cast-iron segments by means of the Beach hydraulic shields, is the first cast-iron tunnel of its kind, and the longest river tunnel in the world, 6,050 ft. It was begun 1889, Aug.; built at the rate of 159 ft. per week, the two shields meeting in the centre 1890, Aug. 30; and the first railroad trip through it was made 1891, Apr. 9. The outside diameter is 21 ft. 7 in.; inside 20 ft. The cost was within the estimate of \$3,000,000.

**ST. CLOUD, *sānt klowd*:** city, cap. of Stearns co., Minn.; on the Mississippi river, and on the Great Northern and the Northern Pacific railroads; 75 m. n.w. of St. Paul. It is in an agricultural and lumber country on both sides of the river, and has an exceptional water-power, provided by a dam and canal which costs \$400,000. The city contains 19 hotels, 2 nat. banks (cap. \$235,000), 1 private bank, gas and electric light plants, water-works, street railroads, 2 opera-houses, U. S. land office, new state reformatory for men, one of the state normal schools, 10 churches, public library; and 1 daily, 3 weekly, and 1 monthly periodicals. The industries comprise 5 grain elevators, saw and flours mills, several foundries and machine-shops, and in the immediate vicinity 23 valuable granite quarries. Pop. (1880) 2,462; (1890) 7,722; (1900) 8,663.

**ST. CROIX, *sānt kroy'*, RIVER,** called also the Passamaquoddy: stream flowing out of Grand Lake on the e. border of Maine, e.s.e. 75 m. to Passamaquoddy Bay, and forming a portion of the boundary between the United States and New Brunswick.

## ST. CROIX—SAINTE-BEUVE.

ST. CROIX RIVER: stream in Wis. flowing s.w. from its source in Douglas co. near the w. part of Lake Superior, to Minn. and then for about 100 m. forming the boundary between the states of Minn. and Wis. It reaches the Mississippi river about 37 m. below St. Paul, is about 150 m. long, navigable for one-third of its course. There are several beautiful falls. An expansion near its mouth is known as St. Croix Lake.

ST. CYR : see CYR, ST.

ST. DOMIN'GO : see DOMINGO, SAN: HAYTI.

SAINTE-BEUVE, *sångt bëv'*, CHARLES AUGUSTIN: French poet and critic of great eminence: 1804, Dec. 23—1869, Oct. 13; b. Boulogne-sur-Mer; son of a controller of customs, who died two months before his birth. His mother, a woman of superior character and intelligence, was of a family originally English, and through her the boy early acquired familiarity with the English language and literature. He studied at the Collège Charlemagne in Paris. On leaving college, though his bent toward literature was already pronounced, he hesitated at taking it as a profession, and betook himself to the study of medicine and anatomy. Shortly, he obtained a situation at the Hospital St. Louis, where he worked steadily; but his spare time was occupied by literature; and his articles in the *Globe* on topics of history, philosophy, and criticism attracted attention, and procured him the acquaintance of Jouffroy. While he was wavering between literature and a profession distasteful to him, Victor Hugo's *Odes et Ballades* were published, and the impression made on him by this work seems to have determined him to a life exclusively literary. He gave up his situation at the hospital, and attached himself to *Le Cénacle*, with Alfred de Musset, the two Deschamps, and others of the so-called Romantic School. Soon, he gave to the world his *Tableau Historique et Critique de la Poésie Française, au XVI.<sup>e</sup> Siècle* (1828—enlarged 1843), which at once established his reputation as one of the first critics of the time. His next work, *Les Poésies de Joseph Delorme*, though somewhat coolly received by the public, brought him a better meed than any applause of the multitude, the emphatic approval of Béranger and others of the literary guild. *Les Consolations* (1830) was more successful in hitting the public taste. On the cessation of *Le Cénacle*, after the revolution of 1830, S. attached himself to the *Globe*; subsequently, he wrote much in the *Revue des Deux Mondes*, the *National*, and the *Constitutionnel*. In 1834 appeared his *Volupté*, a work curious as a study of moral pathology, but more curious than pleasing; 1840 he pub. vol. I. of *Histoire de Port Royal*, a work which he completed 1860 in five vols. 1845, Feb. 27, he received the most distinguished mark of honor which can come to a Frenchman of letters, election to be a member of the Acad. In 1850, he began in the *Constitutionnel*, the famous series *Causeries de Lundi*, most delightful of all his works, and that by which he is most widely known. After the *coup d'état* 1851, Dec. 2, he became connected

## SAINTE-CLAIRES-DEVILLE.

with the *Moniteur*, and was appointed prof. of Latin poetry at the Collège de France. Of this appointment some fruits are before the world in *L'Étude sur Virgile* (1857). In 1865, he was called to be a member of the senate.

As a poet, S., though showing fine talent, never became popular, nor can very high poetic rank be accorded him. But as critic, he was 'himself alone,' and his place is by common consent in the very front of French literature, and among the very foremost of the world. His sympathies were wide and catholic; in delicacy of perception, and subtlety of refined analysis, he was almost without a rival; his style is piquant, lively, fascinating, instinct with individual expressiveness; and nothing can exceed the felicity with which the interest of criticism proper is combined in his sketches with that of anecdotic biography.

Of his works not above mentioned, the following are notable: *Poésies Complètes* (1840); *Critiques et Portraits Littéraires* (1832-39); *Portraits Littéraires* (1844); *Portraits Contemporains*; *Causeries de Lundi* (1851-57); *Nouveaux Lundis* (1863); *Souvenirs et Indiscrétions*; *Le Dîner de Vendredi-Saint* (1872). A selection from *Causeries de Lundi* has been transl. into English, with an introduction, under the title *English Portraits* (1875).—See *C. A. Sainte-Beuve, sa Vie et ses Œuvres*, by D'Haussonville (1875); and an article in *Quart. Rev.* No. 281.

SAINTE-CLAIRES-DEVILLE, *sängt-klär-déh-vél'*, ÉTIENNE HENRI: French chemist: 1818, March 11—1881, July 1; b. St. Thomas, W. Indies. He was educated in France. On quitting college, he constructed at his own cost a chemical laboratory, and for nine years, without master and without pupils, gave himself to patient studies and skilful researches. In 1844 he was commissioned to organize the Faculty of Sciences of Besançon, of which, in the following year, he was appointed dean and prof. In 1851 he obtained the chair of chemistry in the École Normale, which he resigned 1880. In 1853 he became a member of the Faculty of Sciences of Paris; 1861 he was chosen a member of the Acad. of Sciences of the Institute.

In 1849 S. D. made known the mode of preparation and the properties of anhydrous nitric acid, a compound whose existence had been ignored. In 1852 he published an important paper on Metallic Carbonates and their Combinations; and in the following year, a new method of mineral analysis, known as the middle way, in which he proposes the exclusive employment of gases and volatile re-agents, against the errors arising from the use of the filter. About the same time, he began his researches into aluminium, a metal discovered 1827 by Wöhler of Göttingen, but still very little known, and set forth its special properties. Being commissioned by Louis Napoleon to seek the best method of obtaining aluminium at a low price, he made numerous experiments, jointly with M. Debray, in the factory at Javel; and after some months, succeeded in producing ingots of the metal, shown in the Exposition Universelle of 1855. These experiments, and the properties of aluminium, were described by S. D. in scientific periodi-

## STE. CROIX—ST. GERMAIN.

cals; and among his later papers are—on the Three Molecular States of Silicium; on the Metallurgy of Platina; on the Density of Vapors at very High Temperatures; on the Measurement of High Temperatures; on the Permeability of Iron to Gases at a High Temperature; on the Phenomena of Dissociation in Homogeneous Flames; and on the Industrial Preparation of Aluminium and its Compounds. These valuable papers are in the *Mémoires* and *Comptes Rendus* of the Académie des Sciences de l'Institut, and in the *Annales de Chimie et de Physique*.

STE. CROIX, or SAN'TA CRUZ: see VIRGIN ISLANDS.

ST. ELIAS, MT.: see ELIAS, ST.

STE. MARGUERITE' (islands): see LÉRINS, THE.

STE. MARIE, *sängt mā-rē'*: island, French possession, off e. coast of Madagascar. see NOSSI-IBRAHIM

STE. MARIE-AUX-MINES, *sängt mā-rē'ō-mēn'* (Ger. *Markirch*): town of Germany, in Alsace, on the Liepvrette, 12 m. n.w. of Colmar, at the foot of the Vosges Mountains. It formerly owed its prosperity to its silver mines, but these are no longer worked. Its chief manufactures are cotton fabrics of various kinds, paper, and cherry-brandy. Pop. (1871) 12,319; (1880) 11,524.

SAINTES, *sängt*: old town of France, dept. of Charente-Inférieure, on the left bank of the Charente, 43 m. s.e. of La Rochelle. In ancient times, this town, under the name *Mediolanum*, was the cap. of the Santones, from whom the subsequent province derived the name Saintonge. It contains interesting Roman remains, e.g., a triumphal arch, and the ruins of an amphitheatre, circus, etc. Pop. (1881) 13,000 ; (1891) 18,461.

ST. FRAN'CIS RIVER: stream rising in s.w. Mo.: and flowing s.w. to the Mississippi, which it reaches near Helena, Ark. It is 450 m. long, navigable about 150 m., and for quite a distance forms the boundary between Mo. and Ark. In Ark. it passes through an immense swamp and forms several lakes, one of which covers an area of nearly 1,000 miles.

ST. GALL': see GALL, ST.

ST. GAUDENS, *sānt-gaw'dēnz*, AUGUSTUS: sculptor: b. Dublin, Ireland, 1848, March 1. He was brought in his infancy to New York. His art studies, begun at Cooper Union 1861, were continued in the National Acad. 1865-6, and in Paris and Rome 1867-72, since which he has occupied a studio in New York. He was elected academician 1889. Among his works are *Hiawatha*, *The Puritan*, *Adoration of the Cross by Angels* (in St. Thomas's Church, New York), *Admiral Farragut* (in Madison Square, New York), a colossal statue of *Abraham Lincoln* (Dearborn ave., Chicago), and vigorous portrait busts of Gen. Sherman, William M. Evarts, and Theodore D. Woolsey. His colossal statue of Peter Cooper was erected 1897.

ST. GERMAIN, *sāng-zhér-māng'*, Comte DE: mysterious character of whose time and place of birth, and early life, nothing is known: died 1780. He is supposed to have

## ST. GERMAIN-EN-LAYE—ST. HELIERS.

been a Portuguese Jew, and to have been employed as a spy at some of the European courts. He was a learned chemist, master of several languages, was well versed in history, and claimed to have made important chemical discoveries. Among the latter was that of a liquid by whose use life could be indefinitely prolonged. For many years he was very influential at the court of France, went to England 1760, and afterward lived at St. Petersburg, and at various German courts. He is said to have introduced freemasonry into Germany. He died at Schleswig.

ST. - GERMAIN - EN - LAYE, *sāng zhēr-mā̄ng'ōng-lā'*: town of France, dept. of Seine-et-Oise, on an elevation on the left bank of the Seine, 14 m. by railway w.n.w. of Paris. It contains three handsome squares, a parish church, with a monument erected by George IV. over the remains of James II., several learned and other societies, and some factories. Pop. (1881) 15,545; (1886) 15,997.

S.-G. had its origin in a monastery built by King Robert in the beginning of the 11th c., on the summit of the hill, which was surrounded by the forest of Lyda (*Laye*), and dedicated to St. Germain. The town, as well as the royal château, built either during the reign of King Robert, or soon afterward, was sacked by the English 1346, 1419, and 1438. At S.-G. the marriage of Francis I. was celebrated, and this king rebuilt the château 1547. From before the time of Philippe-Auguste, S.-G. had been the residence of the French court during a portion of the year; but Louis XIV. transferred the court to Versailles, and from this time S.-G. declined. Later, the château was assigned by Louis XIV. as the residence of the dethroned James II. of England; and here in exile that monarch held his morose court, devoting almost the whole day to religious observances. The château contains a museum of national antiquities. The Forest of S.-G. comprises nearly 11,000 English acres.

ST. HELE'NA (island): see HELENA, ST.

ST. HELENS, *sēnt-hēl'ēnz*: municipal borough of Lancashire, England, on a small affluent of the Mersey  $3\frac{1}{2}$  m. by railway n.e. of Prescot. It is a straggling, ill-built, but thriving town, with extensive trade in coal. It has plate-glass, copper, and bottle works; also potteries, breweries, tan-yards, iron and brass foundries. Pop. (1861) 18,396; (1871) 45,134; (1881) 51,234; (1891) 71,288.

ST. HELIERS, *sēnt hēl'yērz*: town, cap. of the island of Jersey (q.v.), the chief of the Channel Islands; on the s. shore of the island, on the e. side of St. Aubin Bay; lat.  $49^{\circ} 11'$  n., long.  $2^{\circ} 6'$  w. It is defended by Elizabeth Castle on a rocky island off the shore, approached by a causeway at low water; and by Fort Regent, on the s.e. side of the town, built about 1806, on a scarped granite rock at enormous expense. At spring tides, the water rises 40 ft. Victoria College—a handsome edifice, on an eminence—the hospital, the theatre, and the churches, are the chief buildings. There is active trade with England, France, and India. Pop. of town and parish (1871), 30,756: (1891) 29,100.

## ST. HILAIRE—ST. JOHN.

ST. HILAIRE', JULES BARTHÉLEMY: see BARTHÉLEMY  
ST. HILAIRE.

ST. HYACINTHE, *sānt hī'a-sīnθ'* F. *sāngt ē-ā-sāngt'*: city, cap. of St. Hyachinthe co., Quebec, Canada, on the Yamaska river, and on the Grand Trunk and the Canadian Pacific railroads; about 33 m. n.e. from Montreal. It is the see of a Rom. Cath. bp., and has a college, a convent, and a hospital. One tri-weekly, one semi-weekly, and three weekly papers are published in the French language. Among public buildings are the court-house, city hall, and cathedral. There are manufactures of boots and shoes, agricultural implements, and woolen goods; and the city has extensive trade. Pop. (1891) 7,016; (1901) 9,210.

ST. IVES: see IVES, ST.

ST. JAMES'S PALACE: see JAMES'S, ST., PALACE.

ST. JANUARIUS: see JANUARIUS, ST.

ST. JOHN: city, seaport, and cap. of St. John co., New Brunswick, Canada; on the Bay of Fundy, at the mouth of St. John river, and on the Grand Southern, the New Brunswick, and the Intercolonial railroads; 54 m. s. by e. of Frederickton. It is picturesquely situated on a rocky peninsula that extends into the harbor; is laid out regularly with many streets hewn through 30 ft. or more of solid rock; and is divided naturally into an upper and a lower town. A short distance above the city the river is spanned by a steel cantilever railroad bridge, completed 1886. The city is lighted with gas and electricity; is supplied with water from a lake 4 m. distant; has a grand harbor open the year round; and has annual imports of about \$10,000,000 and exports of \$5,000,000. The notable buildings are the Carleton city-hall, co. court-house, provincial lunatic asylum, Dominion penitentiary, marine hospital, city hospital, Rom. Cath. cathedral, opera-house, Acad. of Music, Mechanics' Institute, post-office, and market house. There are 31 churches, 5 banks, numerous public, parish, and private schools, public library, and 4 daily, 6 weekly, and 3 monthly periodicals. The industries include ship-building, lumbering, sea-fisheries, and the manufacture of steam-engines, machinery, furniture, carriages and wagons, boots and shoes, cotton-goods, railroad rolling-stock, paper, lime, granite, cordage, and hats. S. was settled by loyalists from New England; was chartered 1785; and had a fire which destroyed half the city, including almost the entire business portion (loss \$10,000,000) 1877, June 20. It has since been substantially rebuilt, but its suburbs, Carleton, Portland, etc., have drawn from it much of its former population. Pop. (1871) 28,805; (1881) 26,127 (with suburbs 50,000); (1891) 24,184; (1901) 40,711.

ST. JOHN, CHRISTIANS OF: see CHRISTIANS OF ST. JOHN.

ST. JOHN, HENRY: see BOLINGBROKE, Viscount.

## ST. JOHN—ST. JOHN OF JERUSALEM.

ST. JOHN, JOHN PIERCE: born Brockville, Ind., 1833, Feb. 25. He served as clerk in a store, removed to Cal., made various ocean voyages, was in the Indian disturbances on the Pacific coast, and 1860 studied law in Ill. He served in the civil war, reaching the rank of col.; practiced law in Ill., and afterward in Mo.; and removed to Kan. 1869: was state senator 1873–4, gov. 1878–82, and candidate 1884 of the prohibition party for pres. of the United States, but did not receive an electoral vote.

ST. JOHN, *sānt jōn*, RIVER; called by the Indians Looshtook (Long River): river in New Brunswick famous for beautiful scenery. It rises in Me., near the source of the Penobscot, flows n.e. and s.e., and empties into the Bay of Fundy. It is known as the Walloostook in its upper part, and for about 120 m. forms the boundary between Me. and the British possessions; 225 m. of the lower river are wholly in British territory. Its entire length is over 450 m., and it is navigable 225 m. from its mouth for steamers of light draught; steamers of 120 tons can go to Fredericton, 84 m. from its mouth. It furnishes fine water-power, and with its branches has 1,300 m. of navigable waters, with a drainage area of 26,575 sq. m. or 17,000,000 acres, 6,000,000 of which are in Me. The water compressed into the narrow channel at the mouth falls 12 ft. to reach the harbor at low tide, but at high tide the harbor is from five to eight ft. above the river-level, thus making the passage of vessels between river and harbor dependent upon the tide. By the Ashburton treaty, the St. J. is open for navigation to American citizens.

ST. JOHN OF JERUSALEM, KNIGHTS OF THE ORDER OF; otherwise called KNIGHTS OF RHODES, and afterward KNIGHTS OF MALTA: the most celebrated of all the military and religious orders of the middle ages. It originated 1048 in a hospital dedicated to St. John the Baptist, which some merchants of Amalfi were permitted by the caliph of Egypt to build for reception of the pilgrims from Europe who visited the Holy Sepulchre. The nurses were known at first as the Hospitaller Brothers of St. John the Baptist of Jerusalem. The Seljuk Turks, who succeeded the Egyptian and Arabian Saracens in Palestine, plundered the hospice; and on the conquest of Jerusalem by the crusaders under Geoffroy de Bouillon 1099, the first superior, Gérard, was found in prison. Released from durance, he resumed his duties in the hospice, gave material aid to the sick and wounded, and was joined by several of the crusaders, who devoted themselves to the service of the poor pilgrims. By advice of Gérard, the brethren took vows of poverty, chastity, and obedience before the Patriarch of Jerusalem. Pope Pascal II. gave his sanction to the institution 1113. Raymond du Puy, successor of Gérard in the office of superior, drew up a body of statutes for the order, which was confirmed by Pope Calixtus II. To the former obligations was afterward added that of fighting against the infidels and defending the Holy Sepulchre. Various hospices, called *commanderies*, were established in different maritime towns of Europe as resting-

## ST. JOHN'S.

places for pilgrims, who were there provided with the means of setting out for Palestine. The order having become military as well as religious was recruited by persons of high rank and influence, and wealth flowed in on it from all quarters. On the conquest of Jerusalem by Saladin 1187, the Hospitallers retired to Margat in Phœnicia, whence the progress of infidel arms drove them first, 1285, to Acre; afterward, 1291, to Limisso, where Henry II., King of Cyprus, assigned them a residence. By the statutes of Raymond, the brethren consisted of three classes, Knights, Chaplains, and Serving Brothers; these last being fighting squires, who followed the knights in their expeditions. The order was subsequently divided into eight languages—Provence, Auvergne, France, Italy, Aragon, England, Germany, and Castile. Each nation possessed several Grand Priories, under which were a number of commanderies. The chief establishment in England was the priory at Clerkenwell, whose head had a seat in the upper house of parliament, and was styled First Baron of England.

In 1310 the knights, under their grand-master, Foulkes de Villaret, in conjunction with a party of crusaders from Italy, captured Rhodes and seven adjacent islands from the Greek and Saracen pirates, and carried on thence a successful war against the Saracens. In 1523 they were compelled to surrender Rhodes to Sultan Solyman, and retired first to Candia and afterward to Viterbo. In 1530 Charles V. assigned them the island of Malta, with Tripoli and Gozo: see MALTA. The knights continued for some time to be a powerful bulwark against the Turks; but after the Reformation a moral degeneracy overspread the order, and it rapidly declined in political importance; and in 1798, through the treachery of some French knights and the cowardice of the grand-master, D'Hompesch, Malta was surrendered to the French. The lands still remaining to the order were also about this time confiscated in almost all the European states; but though extinct as a sovereign body, the order has had in the 19th c. a lingering existence in parts of Italy, in Russia, and in Spain. Since 1801, the office of grand-master has not been filled: a deputy grand-master has instead been appointed, who has his residence in Spain. The order at first wore a long black habit, with a pointed hood, adorned with a cross of white silk of the form called Maltese on the left breast, as also a golden cross in the middle of the breast. In their military capacity, they wore red surcoats with the silver cross before and behind. The badge worn by all the Knights is a Maltese cross, enamelled white, and edged with gold; it is suspended by a black ribbon, and the embellishments attached to it differ in different countries.

ST. JOHN'S: town of Canada, province of Quebec; on the left bank of the river Richelieu, opposite the town of St. Athanase, with which it is connected by a bridge, 21 m. s.e. from Montreal: It contains glass-works, potteries, foundries, saw-mills, etc.; and has trade in lumber, firewood, horses and grain. Pop. (1891) 4,772; (1901) 4,030.

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ST. JOHN'S: city, cap. of the province of Newfoundland, Canada; on the peninsula of Avalon and the Newfoundland railroad; 18 m. s. of Cape St. Francis, 65 m. n. of Cape Race, 540 m. e. of Halifax; excepting Cape Spear, 5 m. s., the most easterly part of N. America. It has one of the best harbors on the Atlantic coast, 1 m. long, nearly  $\frac{1}{2}$  m. wide, which vessels of the largest tonnage can enter at all tides. The entrance is through the Narrows, 1,660 ft. wide and 1,980 ft. long, one side of which is a precipitous rock 300 ft. above sea-level, the other an abrupt mountain 650 ft. high. These heights were formerly fortified, but now contain chiefly light-houses. The city is built on a steep incline on the n. side of the harbor, the principal street, Water st., extending more than 1 m. along the harbor edge, and containing business structures of brick and stone exclusively. The residence portion farther up the incline and back from the harbor is built up largely with wood. Water is obtained from Twenty Mile Pond (6 m. distant); there is efficient natural drainage; gas and electric lights abound; and the city has all the material conveniences of a metropolitan sea-port. The public buildings include the gov's. residence (cost \$240,000), house of assembly, public hospital, court-house, lunatic asylum, market, athenæum and academia (both with public libraries and reading rooms). There are 11 churches (3 Church of England, 3 Wesleyan, 3 Rom. Cath., 1 Presb., 1 Congl.); including Church of England and Rom. Cath. (cost \$800,000) cathedrals. Colleges, academies, and advanced schools are maintained by the Church of England, Rom. Cath., Wesleyan, and Gen. Prot. churches; orphan asylums by the Church of England and Rom. Cath. churches; an asylum for widows and orphans by the Church of England; and benevolent work by the St. John's Industrial Soc., Dorcas Soc., St. George's Soc., St. Andrews' Soc., Soc. of St. Vincent de Paul, British Soc., Mechanics' Soc., Ship-wrights' Benefit Soc., and Masonic and temperance organizations. There are 3 banks, 2 ordinary (cap. \$500,000) and 1 savings (under control of the govt.); 19 life, fire, and marine insurance agencies; and 3 daily, 1 semi-weekly, and 1 weekly newspapers. Seal and cod-fisheries constitute the chief industry of the province; the principal exports are seal oil and skins and codfish; imports at port (1889) \$6,607,065; exports \$6,122,985; export of codfish \$4,541,196; total value of all fisheries \$6,371,304 —Pop. (1874) 23,890; (1884) 28,610; (1900) 29,594.

ST. JOHN'S: city of the W. Indies, cap. of the island of Antigua (q.v.), and residence of the gov.-in-chief of the Leeward Islands; at the w. side of Antigua, close to the shore. The town is well laid out, having spacious streets, of which the principal run e. and w., being so arranged to obtain advantage of the refreshing easterly or trade winds which prevail here from Apr. to Aug. The harbor is comparatively shallow, and there is a bar across its mouth, so that vessels heavily laden are obliged to anchor outside. The cathedral, the court-house, and the new market-house, are the chief edifices. Water is scarce

## ST. JOHN'S.

and in long dry seasons the inhabitants suffer greatly from want of it. Wells have been sunk in the town, but the water obtained is brackish, so that rain-water collected in iron and other cisterns forms the only supply. The maximum heat is 96°; the minimum, 62°. The average fall of rain is said to be 45 inches. Pop. (1891) 10,000.

ST. JOHN'S, EVE OF: one of the most joyous festivals of Christendom during the middle ages; celebrated on midsummer eve. From the account of it by Jakob Grimm, in *Deutsche Mythologie* (Bd. i., 583–593), it appears to have been observed with similar rites in all countries of Europe. Fires were kindled chiefly in the streets and market-places of the towns, as at Paris, Metz, etc.: sometimes, as at Gernsheim, dist. of Mainz, they were blessed by the parish-priest, and prayer and praise offered until they had burned out; but usually they were secular in character, and conducted by the laity. The young people leaped over the flames or threw flowers and garlands into them, with merry shoutings; songs and dances were also a frequent accompaniment. Till a comparatively late period, the very highest personages took part in these festivities. In England (see R. Chambers's *Book of Days*, June 24) the people on the Eve of St. John's were accustomed to go into the woods and break down branches of trees, which they brought to their homes, and planted over their doors, amid great demonstrations of joy, to make good the prophecy respecting the Baptist, that many should rejoice in his birth. This custom was universal in England till the recent change in manners. Some of the superstitious notions connected with St. John's Eve are highly fanciful. The Irish believe that the souls of all people on this night leave their bodies, and wander to the place, by land or sea, where death shall finally separate them from the tenement of clay. It is not improbable that this notion was originally universal, and was the cause of the widespread custom of watching or sitting up awake on St. John's night, for there might naturally be a general wish to prevent the soul from going on that dismal ramble. In England, perhaps in other countries also, it was believed that, if any one sat up fasting all night in the church porch, he would see the spirits of those who were to die in the parish during the ensuing twelve months come and knock at the church door, in the order and succession in which they were to die. The above particulars from the *Book of Days*—the kindling of the fire, the leaping over or through the flames, and the flower-garlands, clearly show that these rites are essentially of heathen origin, and of sacrificial character. They are obviously connected with the worship of the sun, and were doubtless practiced long before John the Baptist was born. In old heathen times, Midsummer and Yule (q.v.), the summer and winter solstices were the two greatest and most widespread festivals in Europe. The church, deeming itself unable to abolish these, changed their names, and tried to find something in the history of Christianity that would justify the alteration—a doubtful experiment, scarcely justified by results.

## ST. JOHN'S—ST. JOHN'S COLLEGE.

ST. JOHN'S RIVER: stream rising in the Cypress swamp, Brevard co., Fla. After passing through Orange co., it separates St. John's co., on the e. from Marion, Putnam, and Clay cos. on the w., and flows through part of Duval co. to the Atlantic Ocean about 15 m. from Jacksonville. Total length, nearly 400 m.; about 225 m. navigable for large steamers, while smaller craft can proceed 60 m. farther. From its source to Jacksonville the river flows n., parallel with the coast and only 20 m. away, but from that point it flows e. to the ocean. It has but a slight current; in the upper portion, it has a shallow channel several m. broad, and for a large part of its course is not less than 1 m. wide. At various points it forms small lakes. There are many orange groves in the vicinity, and the region is noted for its beauty and for the luxuriance of its vegetation.

ST. JOHNS'BURY: town, cap. of Caledonia co., Vt.; on the Passumpsic river, and on the St. Johnsbury and Lake Champlain and the Boston and Maine railroads; 38 m. e.n.e. of Montpelier, 50 m. s. of the Canadian boundary. It contains a fine court-house with a soldiers' monument in front, erected 1867; St. Johnsbury Acad. with South Hall dormitory (presented to the town by Thaddeus Fairbanks, cost \$50,000 and \$36,000, respectively); St. Johnsbury Athenæum, with library, reading-room, and art gallery (presented by Horace Fairbanks); 12 churches; 2 national banks (cap. \$600,000); 2 savings banks (cap. and surplus \$80,000); and 2 weekly and 1 academical periodicals. The chief industry is the manufacture of standard scales, which has the largest plant of the kind in the world. Other manufactures are foundry products, machinery, and agricultural implements. Pop. (1880) 5,800, (1890) 3,857; (1900) 5,666.

ST. JOHN'S COLLEGE (at Fordham, city of New York): Rom. Cath. institution, founded by Abp. Hughes, opened 1841, and chartered as a univ. 1846. It is in the care of Jesuit fathers. Besides the college curriculum, there are preparatory and commercial courses of study. The buildings, of which two large and imposing structures are of quite recent date, are on an extensive campus of 20 acres adjoining the Harlem and New Haven railroad; and a college farm and garden of 80 acres is attached. There are libraries aggregating 37,000 vols., and good scientific laboratories and cabinets. There is no permanent endowment. The professors and tutors, lately, numbered 39, and students more than 300. The students of the principal departments are kept separate. The correspondence of students and the circulation of periodicals among them is kept under official supervision. An excellent feature is the use of Latin in senior lectures and recitations.

## ST. JOHN'S COLLEGE—ST. JOSEPH.

ST. JOHN'S COLLEGE, in Cambridge, England, institution founded 1511 by Lady Margaret, Countess of Richmond, mother of Henry VII. The site had been long before devoted to pious uses; in 1134, Neal, Bp. of Ely, founded here a hospital for Canons Regular; and later, Hugh de Balsham made it into a priory dedicated to St. John the Evangelist. The foundation is for a master, elected by the Soc., 56 fellows, 60 scholars, and 9 proper sizars. There are also numerous exhibitions of considerable value, and eight minor scholarships open every year to competition for students who have not yet commenced residence in the university. Among names of interest connected with St. J. C., are William Grindal, tutor to Queen Elizabeth; Roger Ascham; Cecil, Lord Burleigh; Richard Bentley, Kirke White, the poet; Henry Martyn, etc. See Cooper's *Memorials of Cambridge*.

ST. JOHN THE BAPTIST, COLLEGE OF; or JOHN'S COLLEGE; in Oxford, England: institution which succeeded one older founded by Abp. Chichele 1456 for monks of the Cistercian order. Sir Thomas White procured a license from King Philip and Queen Mary, and 1555 founded John's College, dedicated 'to the honor of God, the Virgin Mary, and St. John the Baptist.' The foundation consists of a pres., 50 fellows and scholars, and a choir. This college presents to 30 benefices. In 1879 there were more than 500 names on the books.

ST. JOSEPH: city, port of entry, and cap. of Buchanan co., Mo.; on the left bank of the Missouri river, and on the Chicago Burlington and Quincy, the Chicago Rock Island and Pacific, the Chicago St. Paul and Kansas City, the Kansas City St. Joseph and Council Bluffs, the Missouri Pacific, the St. Joseph and Grand Island, and the St. Joseph St. Louis and Santa Fé railroads; 110 m. n. by w. of Kansas City, 133 m. s.s.e. of Omaha, 260 m. w. by n. of St. Louis, 390 m. w.s.w of Chicago; 7 sq. m. It is one of the oldest cities w. of the Mississippi, in a region of great natural richness, and on an elevation overlooking the Missouri river. The Missouri and Mississippi rivers afford direct navigation from St. J. to the Gulf of Mexico on the s., and the former is navigable to the Yellowstone on the n. The exceptional facilities for transportation by rail and water which St. J. has secured, have made it a commercial distributing point of much importance. The city is tastefully laid out, and has 120 m. of streets, including 40 m. of improved roadway, macadam and asphalt, 55 m. of sidewalk, 15 m. of sewers, 25 m. of gas mains, 30 m. of water mains, electric-light system of its own, and 30 m. of electric street railroad. The most notable buildings are the new union depot, where 96 passenger trains arrive and depart daily; U. S. custom-house and post-office (cost \$350,000); co. court-house (\$350,000); public market (\$125,000); Board of Trade building (\$110,000); Y.M.C.A. building (\$100,000); iron railroad and foot bridge across the Missouri river (completed 1873, cost \$1,500,000); and the St. Joseph stock-yards, covering 450 acres, opened 1888, cost at opening \$500,000, cost since doubled in im-

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provements, and containing, beside the usual hog, sheep, and cattle pens, commodious quarters for horses and mules. There are also a city-hall, opera-house, State Asylum for the Insane, 24 churches, and several public halls. In 1887-8 there were 19,035 children of school-age (6-20 yrs.), of whom 5,399 were enrolled in the public schools and 700 in private and parochial schools; 22 public school buildings with accommodations for 4,500 pupils; 98 teachers; 2 high schools with 7 teachers and 235 pupils; school property valued at \$238,168; receipts excepting money borrowed \$107,045; expenditures \$115,525. There were also two medical colleges, St. Joseph College, Young Ladies' Institute (non-sect.), Acad. of the Sacred Heart (Rom. Cath.) and numerous denominational schools for secondary and higher instruction. There were five public libraries. In 1888 the manufacturing and meat-packing industries yielded in products \$22,435,910, and the general trade \$101,574,591. During the year ending 1890, June 30, the imports at St. J. were \$154,159, of which \$147,991 were dutiable, \$6,168 non-dutiable, \$153,590 entered at the custom-house for immediate consumption and \$569 for warehouse; \$214 came in American steam vessels. Value of imports 1901-3, June, \$261,869. The net city debt (1902) was \$1,108,150; assessed value of all taxable property \$25,346,740; tax rate \$1.50 on \$100. In 1902 there were 3 national banks (cap. \$550,000), 5 state banks (cap. \$490,000), 1 private bank; and 4 daily (one Ger.), 7 weekly, 1 semi-mon., 3 monthly periodicals. St. J. was founded by Joseph Robidoux 1843; became co. cap. 1846; was a noted outfitting point for Cal. overland pioneers 1849; received a city charter 1851; first became a railroad terminus (Hannibal and St. Joseph) 1859; and was occupied and fortified by the federal govt. 1861. Its progress since the civil war, especially since 1880, has been rapid and uninterrupted.—Pop. (1870) 19,565; (1880) 32,431; (1890) 52,324; (1900) 102,979.

ST. JOSEPH RIVER: river rising in Hillsdale co., Mich., following a crooked course through part of n. Ind. and then back to Mich., and reaching Lake Michigan at St. Joseph, where it forms a good harbor. It is 250 m. long and navigable for about half its course.—Another river, of the same name but of less importance, rises in the same co., and near Fort Wayne, Ind., unites with St. Mary's river, forming the Maumee.

## ST. JUST.

SAINT JUST, *sâng zhüst'*, LOUIS ANTOINE DE: notable figure in the first French Revolution: 1767, Aug. 25—1794, July 28; b. Decize, in Nivernais. He was educated at Soissons by the Oratorians, and after a youth of unpromising turbulence, went to Rheims to study law, but soon returned to his native village, where he applied himself to literature. When the revolution broke out; S. J. was transported with enthusiasm, and became one of its most ardent apostles. Probably no man in France was a more fanatical believer in the brilliant delusions of the period. Spotless, even austere, in his morals—as though in reaction from his former ill-behavior—reserved in manner but eloquent in speech, and rigorously earnest in his convictions, he rapidly rose into consideration in his native commune. In 1791, appeared his *Esprit de la Revolution et de la Constitution de la France*, in which the various causes of the Revolution are sketched; and in the following year he was chosen deputy to the convention by the electors of Aisne. S. J. entered Paris Sep. 18, fifteen days after the frightful massacres, which Lamartine in his *Histoire des Girondins* with melodramatic inaccuracy represents him as ordering in conjunction with Robespierre. He voted for the death of the king, and in an oration full of stern but exaggerated republican sentiment, gave his ‘reasons.’ This speech made him famous. The Girondins tried in vain to win him. He showed great capacity for administrative organization, and 1793, Feb. 11, carried his project for the formation of a committee to superintend the war. After the fall of the Girondins in June (S. J. took no part in their overthrow, and never once spoke in debate during the disastrous struggle between the two sections), the civil war broke out; and from this point began that merciless republicanism which fitted him to be the associate of Robespierre. S. J.—perhaps because so young—has often been deemed merely an instrument in the hands of Robespierre; but the known facts of his career utterly disprove this; and some writers have not scrupled to make S. J. the real head of the extreme party which exercised govt. in France during the *Reign of Terror*. Almost all the energetic and sanguinary measures to repress the royalists and timid republicans at home, and to repel the forces of the allied monarchs on the frontier—urging on the French generals the alternative of attacking and winning victories or of being summoned to trial before the revolutionary tribunal—were devised by him. Feb. 19 he was elected pres. of the convention. He drew up the terrible report which led to the arrest and execution of Hebert Danton, and their adherents. S. J. had no scruples in cutting off his opponents: the fanatical intensity of his convictions rendered him indifferent to cruelty, however appalling. When the political reaction set in, and the party of moderation had got the upper hand in the convention, Robespierre and S. J. were seized and imprisoned 1794, July 27, and ordered to be guillotined next day. S. J. suffered with sullen calmness—not a word escaping his lips. See Ern. Hamel’s *Histoire de St. Just* (Par. 1859).

## ST. KILDA—ST. LAWRENCE.

ST. KIL'DA (island): see KILDA, ST.

ST. KITTS (island): see CHRISTOPHER'S, ST.

ST. LAWRENCE, *sānt law'rēns*, GULF OF: western inlet of the n. Atlantic, extending to all the British provinces of eastern N. America—Newfoundland, Canada, New Brunswick, Nova Scotia, and Prince Edward's Island. It has three communications with the ocean—the Strait of Belle Isle, between Newfoundland and Labrador; the Gut of Canso, between the island of Cape Breton and the peninsula of Nova Scotia; and a far wider passage than either, with the island of St. Paul in the middle, between Cape Breton and Newfoundland: while in the opposite direction it narrows, at the w. end of Anticosti, into the estuary of the mighty river, to which the Gulf has gradually extended its own name. Besides the islands Anticosti, St. Paul, and Prince Edward's, above mentioned, this arm of the sea contains very many clusters of islands—particularly in its southern half, the Magdalens and the Birds; these islands all being dangerous to shipping by reason of the thick fogs and uncertain currents. The Gulf of St. L. is noted for the productiveness of its fisheries; but it is best known as a channel of traffic, connecting the busiest thoroughfares of maritime trade with one of the most extensive systems of inland navigation in the world.

ST. LAW'RENCE RIVER: immense water-course in northern N. America; constituting, with the lakes which it forms, by far the largest body of fresh water in the world. Including the lakes and streams which it comprises in its widest acceptation, it covers, by the lowest estimate, 73,000 sq. m.; and as nearly the whole of this area averages considerably more than 600 feet in depth of water, the aggregate cannot represent less than 9,000 cubic m.—a mass of water which would take more than 40 years to pour over the Falls of Niagara, at the computed rate of a million cubic ft. in a second. As the entire basin of this water-system is less than 300,000 sq. m., the surface of the land is only about three times that of the water.

This mighty artery of northeast America rises, under the name of the St. Louis, on the spacious plateau which sends forth also the Mississippi toward the Gulf of Mexico, and the Red river of the North toward Hudson's Bay—all three being said, in wet seasons, occasionally to mingle their floods. Lake Superior, the next link in the chain, finds its way to Lake Huron through the rapids of St. Mary, which are passed by a ship-canal on the right, or American side. Below Lake Huron, which receives Lake Michigan from the s., the river St. Clair, Lake St. Clair, the river Detroit, and Lake Erie maintain nearly the same level, till the river Niagara descends 334 ft. to Lake Ontario, which is itself still 230 ft. above sea level. From this, the last of the connected series of inland seas, issues the St. L. proper, which, with a few comparatively small expansions, presents the character first of a river, then of an estuary, down to the gulf. Between Lake Ontario and the city of Montreal, which marks the head of navigation

## ST. LÔ.

from the sea, are various cataracts or rapids, which, besides having been gradually ascertained to be more or less passable by vessels, may all be avoided by means of canals on the British side. At about two-thirds of the distance from Lake Ontario to the city of Montreal, the intersection of the parallel of 45° determines the point where the St. L., after having been an international boundary from the head, or nearly so, of Lake Superior, becomes exclusively Canadian. Immediately above the island of Montreal, the St. L. is joined by its principal auxiliary, the Ottawa, from the n.w.; and a little more than half-way between this confluence and Three Rivers, the highest point of tidal influence, the Richelieu or Sorel, from the s., brings in the tribute of Lake Champlain. Between Montreal and Quebec the St. L. has been much deepened (see MONTREAL). At Quebec, nearly 400 m. from Lake Ontario, it steadily widens into an estuary of about the same length. The entire length, including the chain of lakes, is about 2,200 m.; of which about one fourth may be assigned to the St. L. proper.

In connection with the improvements on itself and its affluents, the St. L. offers to sea-going ships the noblest system of inland navigation in the world, embracing a continuous line of about 2,000 m.: its advantages, however, are materially impaired by the severity of the climate, which binds it in the chains of winter at least five months in the year.

ST. LÔ, *sang lô*: old town of France, cap. of the dept. of Manche; on a rocky elevation on the right bank of the river Vire, 55 m. by railway s.e. of Cherbourg. From the high central part, several streets, more or less steep, branch off in different directions. The town, which is said to owe its origin and its name to a St. Lô, Bp. of Coutance, who caused a church to be built here in the 6th c., was destroyed by the Normans 888; and taken by the English 1346, and again, 1417. Noteworthy are the beautiful churches of Ste. Croix, founded 805, and of Notre Dame, which dates from the 15th c. Flannels, druggets, and cotton fabrics, cutlery, and leather, are manufactured, and horses for cavalry are here obtained. Pop. (1881) 10,000.

## ST. LOUIS.

ST. LOUIS, *sânt lô'is*: city, port of delivery, and since 1875 a jurisdiction separate from St. Louis co., Mo.; on the w. bank of the Mississippi river, 20 m. below the mouth of the Missouri, 190 m. above the mouth of the Ohio, 1,063 m. w. of New York, 1,150 m. n. of New Orleans; 62½ sq. m.; ranking in pop. among U. S. cities 6th (1880), and 4th (1900). Its commercial location is exceptional. Beside its extensive water communications, it is on the Chicago and Alton, the Chicago Burlington and Quincy, the Cleveland Cincinnati Chicago and St. Louis, the Illinois and St. Louis, the Jacksonville Southeastern, the Louisville and Nashville, the Louisville Evansville and St. Louis, the Missouri Pacific, the Mobile and Ohio, the Ohio and Mississippi, the St. Louis and San Francisco, the St. Louis Alton and Terre Haute, the St. Louis Iron Mountain and Southern, the St. Louis Kansas City and Colorado, the St. Louis Keokuk and Northwestern, the Toledo St. Louis and Kansas City, the Vandalia, and the Wabash railroads. These various transportation facilities have made St. L. the commercial metropolis of the Mississippi valley; and the federal govt. has added to the importance of the city by designating it as one of the ports of delivery of the New Orleans customs district. During the year ending 1890, June 30, the imports entered at the St. L. custom-house aggregated \$3,087,811 of which \$2,835,445 were dutiable, \$252,366 non-dutiable, \$81,809 imported direct from foreign countries, \$3,006,002 imported through exterior ports without appraisement, \$3,029,422 entered for immediate consumption, \$58,389 for warehouse, \$80,962 were brought in land vehicles. \$148,523 in American steam-vessels, value of imports, 1902-3, June, \$4,876,305. In 1890, 204 vessels of 127,283·46 tons enrolled and licensed in the custom-house, of which 111 of 41,361·54 tons were steam-vessels, and 93 of 85,921·92 tons were barges. During the year 6 steam-vessels of 307·54 net tons and 4 barges of 1,990·19 net tons —total vessels 10, net tonnage 2,297·73—were built here.

The city is attractively laid out on a site rising in three terraces, of 20, 150, and 200 ft., respectively, from the river, and extending to a bluff at Cote Brilliante; length of city at water-front 19·15 m., at w. limits 21·27 m. Beyond Cote Brilliante area succession of beautiful elevations, numerous hills, and spacious plateaus, giving the city suburbs and environs of large natural beauty. The city is laid out regularly, with broad streets parallel with the river or at right angles to it, and is substantially built, brick and stone predominating in material. One of the most notable features of the topography and adornment of the city is the extensive and liberally maintained system of public parks. There are in all 22 public parks, squares, and places, comprising nearly 2,500 acres. The largest in size is Forest Park, with 1,371 acres; 20 m. of avenues, drives, and walks; a grand array of trees; and a picturesque stream of water, Des Peres river. Tower Grove Park (276 acres) and the Shaw Botanical Garden (50 acres) adjoin each other. Both were presented to the city by Henry Shaw, and are marvels

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of natural and cultivated beauty. The Botanical Garden comprises an Arboretum, Fruticetum, Herbaceous and Flower Garden, Labyrinth, and a Museum and botanical library. O'Fallon Place (180 acres), Carondelet Park (120), Fair-grounds of the St. Louis Agricultural and Mechanical Assoc. (147), Lindell Park (60), Lafayette Park (30), Washington Sq. (16), St. Louis Place (16), Hyde Park (12), and Missouri Park (4), are noteworthy resorts. Bellefontaine and Calvary cemeteries, each comprising about 350 acres, are laid out with much taste and contain many handsome monuments.

In the school-year 1887-8 there were 57,074 children of school-age (6-20 years) enrolled in the public schools, of whom 39,597 were in average daily attendance, and 20,570 enrolled in private and parochial schools. There were 106 public school buildings with accommodations for 48,774 pupils, and 103 male and 1,042 female (1,145) teachers regularly employed. The value of school property was: grounds \$833,013, buildings, furniture, apparatus, and libraries \$2,695,436—\$3,528,449; receipts: state \$97,649, city \$856,417, tuition fees \$1,067, all other sources \$116,172—\$1,071,305; expenditures: new sites and buildings \$38,100, furniture \$6,647, libraries and apparatus \$14,000, repairs \$67,649, superintendence \$20,524, teachers' salaries \$681,478, incidentals \$243,912—\$1,072,310. Higher education was provided by a high school, which had 45 teachers and 1,117 pupils; state normal school (opened 1857), 9 teachers and 150 students; public kindergarten normal class, 3 teachers and 28 students; 70 kindergartens supported by public funds; Acad. cf the Sacred Heart (Rom. Cath.), opened 1827, 30 instructors and 115 students; School of the Good Shepherd (Pret. Episc.), 1874, 18 instructors and 106 students; Educational Institute, 1879, 15 instructors and 281 pupils; Lutheran High School, 1867, 2 instructors and 64 pupils; Smith Acad., 1853; and Union School for boys, 19 instructors and 328 pupils. The institutions for the superior education of women were: Mary Institute, Washington Univ. (non-sect.), 1859, 22 instructors and 312 students, and Ursuline Acad. (Rom. Cath.), 1849, 25 instructors and 280 students. The colleges of liberal arts were: College of the Christian Brothers (Rom. Cath.), 1851, 25 instructors, 354 students, 10,000 vols. in library, \$600,000 in grounds and buildings, \$15,000 income, the Rev. Bro. Paulian pres.; St. Louis Univ. (Rom. Cath.), 1829, 13 instructors, 315 students, 25,000 vols. in library, \$500,000 in grounds and buildings, the Rev. Henry Moeller, s.j., pres. (Edward J. Gleeson, s.j., pres. 1890); and Washington Univ. (non-sect.), 1853, 26 instructors, 102 students, 10,000 vols. in library, \$625,000 in grounds and buildings, \$160,000 in scientific apparatus, \$650,000 in productive funds, \$85,000 income, M. S. Snow acting chancellor. In 1871 Hudson E. Bridge gave the univ. \$100,000 for a chancellorship and library fund, \$15,000 toward the erection of a building for a polytechnic school, and \$15,000 to provide the school with furniture and apparatus. The Henry Shaw School of Botany, the

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St. Louis School of Fine Arts, a law-school, and a manual training-school are connected with the university. Here were two schools of theol.: Concordia College (Luth.), 1839, 5 instructors, 97 students, 6,000 vols. in library, \$200,000 in grounds and buildings, Franeis Pieper pres.; and Eben College (Ger. Evang.), 1850, 3 instruetors, 82 students, 2,800 vols. in library, \$125,000 in grounds and buildings, \$10,000 income, L. Haeberle pres. The schools of medicine, dentistry, and pharmaey were: Missouri Medical College (1840), 20 instruetors, 233 students, \$50,000 in grounds and buildings, \$16,000 income, T. F. Prewitt, M.D., president; Beaumont Hospital Medical College, (1886), 20 instructors, 54 students, \$18,000 in grounds and buildings, \$3,750 income, W. B. Outten pres.; St. Louis College of Physicians and Surgeons (1879), 22 instructors, 109 students, \$10,000 in grounds and buildings, \$5,018 income, Joseph L. Bauer, M.D., pres.; St. Louis Medical College (1841), 32 instruetors, 96 students, \$40,000 in grounds and buildings, \$7,000 income, J. S. B. Alleyne, M.D., pres.; American Medical College (eelectric, 1873), 15 instructors, 49 students, Edwin Younkin, M.D., pres.; Homœopathic Medicel College of Missouri (1857), 13 instructors, 44 students, \$18,000 in grounds and buildings, S. B. Parsons, M.D., pres.; St. Louis Post-graduate School of Medicine (1884), 26 instructors, 24 students, \$33,000 in grounds and buildings, W. A. Hardaway, M.D., pres.; Missouri Dental College (1865), 14 instructors, 36 students, Henry H. Mudd, M.D., pres.; St. Louis College of Pharmacy (1866), 6 instruetors, 170 students, James M. Good, PHAR.G., pres.; and St. Louis Training-school for Nurses (1884), 16 instructors, 25 students. Deaf-mutes reeeived instruation in the Convent of Maria Consilia (Rom. Cath.), 1885, 2 instructors and 35 pupils, and in the St. Louis Day-school for Deaf-mutes (1878), 3 instructors and 44 pupils; the blind in the Missouri School for the Blind (1851), 10 instruetors and 92 pupils, receipts and expenditures, \$23,000; and refractory youth in the State Reform School (1854), 7 instruetors and 242 inmates, receipts and expenditures \$41,000. There were also 4 commercial colleges with 20 instruetors and 831 students. Libraries of all kinds numbered about 70, and the principal ones beside those in schools, colleges, and assoeiations were: St. Louis Mercantile (1846), 68,732 vols.; St. Louis Public (1865), 65,088; Law (1838), 14,987; Acad. of Scienee (1857), 12,000; Missouri Hist. Soc., (1865), 4,000 vols. and 3,700 pamphlets; St. Louis Turnverein (1858), 4,500; Y. M. Sodality (1855), 3,786; and Odd Fellows' (1868), 4,150. In 1891 there were 14 daily, 1 semi-weekly, 51 weekly, 8 semi-monthly, 64 monthly, 1 bi-monthly, and 4 quarterly publications.

St. L. is the seat of a Rom. Cath. abp. and of a Prot. Episc. bp.; and the most noted church edifices are the Rom. Cath. Cathedral and Christ Church (Prot. Episc.). In 1890 there were about 225 elurches in the city, divided denominationaly as follows: Rom. Cath. 47; Bapt. 27; Presb. 26; Meth. Episc. 15; Prot. Episc. 15; Congl. 14;

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German Evangelical 14; German Lutheran 12; Meth. Episc. South 9; Hebrew 8; Christian 4; New Jerusalem 3; Unit. 3; Cumberland Presb. 2; Unit. Presb. 2; Ref. Presb. 1; English Lutheran 1; miscellaneous 22. Beside many of the church edifices, and banking, financial, and charitable institutions, the most notable buildings are the new U. S. Custom-house and Post-office (cost \$6,250,000), the Merchants' Exchange (nearly \$2,000,000), Court-house (\$1,250,000), the Four Courts, Insane Asylum (\$900,000), Exposition and Music Hall building (more than \$800,000), the Emigrants' Home, the Home for Widows and Orphans, Art Museum (\$200,000), and Armory Hall. The most noted structure of all, however, is the great stone, iron, and steel bridge over the Mississippi river, connecting s. with East St. L. It was completed 1874, and cost more than \$10,000,000. It is built in two stories or sections; contains 5,600 tons of steel and charcoal iron; has three arches or spans, supported by stone abutments on the banks and by two granite piers rising from solid rock beneath the river-bed, the side arches being each 500 ft. long, and the central one (one of the longest of its kind ever built) more than 520 ft.; and is 2,225 ft. in total length. The lower story, which contains double railroad tracks, passes over a viaduct of five arches, and connects with a tunnel 4,800 ft. long, which extends a considerable distance beneath the city. A second and smaller bridge, named the St. Louis Merchants' Bridge, was opened 1890, May 3.

In 1902 the net public debt was \$18,269,409; assessed valuation of property \$329,680,200; personal \$60,344,890; tax rate \$1.95 on \$100; and 1902, Sept., there were 6 nat. banks (cap. \$14,400,000), 14 state banks (cap. \$3,350,000), 10 private banks, and 4 miscellaneous. The city is lighted with gas and electricity; is supplied with water from the Mississippi river by means of large settling basins and distributing reservoirs; has a paid fire dept. with about 40 pieces of apparatus; effective local and suburban rapid transit, promoted by about 40 street railroad lines of various kinds; and, besides its great railroad facilities, has adequate water communication with distant cities by four lines of steamers plying up the Mississippi and three lines down, two lines on the Missouri river, and one line on the Illinois. It is governed by a mayor; a municipal assembly comprising a council of 13 members, elected on the general municipal ticket, and a house of delegates, of one representative from each ward; both the usual city and co. officers; and by commissioners having charge of the most important departments.

Though most widely known as a commercial city, St. L. has extensive and rapidly growing manufacturing interests. In 1890 there were 6,148 manufacturing establishments, with aggregate capital \$141,872,386, employing 94,051 persons, paying in wages \$53,394,630, using materials valued at \$122,216,570, and yielding products valued at \$229,157,-343. The chief industry according to capital employed was malt liquors, which had 8 establishments, capital \$15,910,417, employees 2,870, wages \$2,278,194, materials

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\$6,289,053, products \$16,185,560. Then followed foundry and machine shop products with 103 establishments, capital \$10,184,926, employees 6,345, wages \$3,877,946, materials \$5,096,781, products \$11,945,493; printing and publishing, with establishments 213, capital \$5,209,660, employees 5,185, wages \$3,423,806, materials \$2,466,368, products \$8,555,450; masonry, establishments 160, capital \$4,436,578, employees 4,606, wages \$3,177,469, materials \$4,558,728, products \$9,122,952; carpentering, establishments 407, capital \$4,364,659, employees 3,936, wages \$3,011,377, materials \$5,795,439, products \$10,364,922; flouring and grist-mill products, establishments 20, capital \$4,110,954, employees 763, wages \$559,877, materials \$10,-853,606, products \$12,456,000; tobacco, cigars, etc., establishments 308, capital \$4,681,840, employees 4,058, wages \$1,976,539, materials \$8,197,531, products \$15,912,-566; paints, establishments 15, capital \$3,583,107, employees 504, wages \$344,508, products \$3,238,317. In 1900 the number of establishments was 6,372; capital employed \$162,179,331; wage-earners, 82,672; value of products \$233,629,733. There were 139 foundries and machine shops, products \$11,628,140; 28 breweries, capital \$23,-349,239; products \$11,673,599; 21 slaughtering and meat packing estab., value of products \$12,267,532.

St. L. was founded 1764, Feb. 15, as an Indian trading-post by Pierre Laclede Lingueste, acting for a mercantile company, which had received from the French director-gen. of La. a grant of exclusive trading rights with the Indians on the Missouri river. It became the cap. of Upper La. the following year, and remained under direct French control till 1770, Nov. 29, though the treaty of Paris (1763) had given it to Spain. By the cession of La. to France 1800, it again came under French jurisdiction, and so remained till the purchase of the entire territory by the United States 1803. The transfer of the territory officially was made here 1804, Mar. 9; the settlement was incorporated as a town 1809, Nov. 9; the first brick building was erected 1813; the first bank established 1816; the first steamboat arrived 1817; John Jacob Astor established the w. headquarters of his trading company here 1819; the town received a city charter 1822, Dec. 9; and it was organized as a separate municipality 1836. In 1870 the former city of Carondelet was annexed, and 1875 the city was separated from all co. authority and granted permission to greatly extend its limits. The growth and prosperity of the city has been attended by much adversity. It was greatly injured by floods 1785 and 1844; by financial distress 1837-47; by cholera 1832 and 48; and by fire 1849. Its growth has been accelerated by extension of river communications, development of its great railroad interests and construction of levees. Louisiana Purchase Ex. opened 1904, occupied 1,180 acres, had 15 great exhibit bldgs. Pop. (1830) 5,862; (1840) 16,469; (1850) 77,860; (1860) 160,773; (1870) 310,864; (1880) 350,518; (1890) 451,770; (1900) 575,238.

## ST. LOUIS—ST. MALO.

ST. LOU'IS: town, cap. of the French possessions in Senegambia; on the small low island of St. L., at the mouth of the Senegal river. The town covers almost the whole island. With its fortifications, it presents an imposing appearance from the sea, but the interior is mean and dirty. The harbor is good. The principal building is the govt. house. There are 600 stores for goods. St. L. possesses a bontanic garden. Pop. 20,200.

ST. LOU'IS, LAKE: in Quebec, Canada, an expansion of the St. Lawrence river, 9 m. s.w. of Montreal; greatest length 20 m., width 7 m. It is the outlet of the Ottawa river, which enters it on the w. side through two channels.

ST. LUCIA, *sānt lō-sē'a*: one of the Windward islands, a division of the Caribbees (see ANTILLES); about 30 m. s. of Martinique; its s. extremity being in lat.  $13^{\circ} 41'$  n., long.  $61^{\circ}$  w. St. L. has been a Brit. possession since 1803. The island is of volcanic origin, and the crater of the *Soufrière*, or *Sulphur Mountain*, is still in energetic operation. St. L. is remarkable for picturesque and romantic scenery. Much of the surface is covered with hills, generally well wooded, and occasionally rising to nearly 3,000 ft. Area, 248 sq. m., or 158,720 acres, of which (1860) 9,026 acres were under crops. As the coast abounds in secure, commodious, and defensible harbors—more valuable from their comparative scarcity in that region—the island has been, perhaps to an unrivalled extent, an object of contention between France and England. Since 1803 it has belonged to England. In 1901 L. contained 44 schools, with 6,880 scholars. The chief export is sugar, the amount 1879 being 11,273 hogsheads. In 1881 the revenue was £32,291; expenditure, £32,652; imports were valued at £120,134, exports £168,478. The public debt for the same year was £33,500. The total tonnage of vessels which entered and cleared the port 1879 was 323,-567. Pop. (1881) 38,551; (1891) 41,713; (1901) 50,237.

ST. MALO, *sāng má-lo'*: fortified seaport of France, dept. of Ille-et-Vilaine, at the mouth of the river Rance. It stands on a small island less than three m. in circumference, called *Le Rocher d'Aaron*, which is connected with the shore by a causeway, 650 ft. long, called *Le Sillon*. The island is completely covered by the town; the streets are narrow, filthy, and ill-ventilated, and the houses are built to the height of five and six stories. The harbor is spacious and secure, but its entrance is narrow and thickly set with rocks and shallows. It is perfectly dry at ebb-tide, but the flood-tide rises 45 to 50 ft. Numerous strong forts, both on the mainland and on the small islands that stud the roads, protect the harbor and town. The harbor works were completed under the second empire, and cost nearly 20 million francs. Ship-building is the principal industry. On the island of Grand-Bé, near the ramparts, is the tomb of Chateaubriand (q.v.). Many vessels are employed in the mackerel, cod, and whale fisheries, and active commerce is carried on. S. M. communicates with Rennes (cap. of the dept.) by railway. In a single year, S. M. exports goods to the value of \$7,500,000, chiefly butter, to Great Britain. Pop. (1886) 10,225; (1896) 11,476.

## SAINT MARC GIRARDIN—ST. MICHAEL'S.

SAINT MARC GIRARDIN': see GIRARDIN.

ST. MARTIN: one of the Lesser Antilles, W. Indies, between Anguilla and St. Bartholomew; lat.  $18^{\circ} 5'$  n., long.  $63^{\circ} 3'$  w.; about 30 sq. m. The n. part belongs to the French, the s. to the Dutch. The surface is hilly and moderately fertile, the n. portion being more productive. The products are sugar, rum, molasses, tobacco, and salt, vast quantities of the last named being made from the extensive salt lagoons or marshes in the s. part. Pop. (1900) 3,174.

ST. MARY AND ALL SAINTS COLLEGE, LINCOLN, Oxford: commonly called LINCOLN COLLEGE (q.v.).

SAINT MARY HALL, in Oxford, England: institution of learning, established 1239 by Henry Kelpe, citizen of Oxford, by presentation of a tenement on the site of the present St. Mary Hall to the rector of St. Mary's Church, to be the parsonage house. Edward II. gave the church, with the parsonage, to Oriel College. The college converted the parsonage into a place of education, and it gradually grew into an independent hall. It possesses 4 scholarships of £60 per annum, and one exhibition.

ST. MARY'S STRAIT, or RIVER: stream, consisting of several small lakes and their connections, which leads from Lake Superior to Lake Huron, a distance of about 60 m., and separates Michigan from Ontario, Canada. There are a number of islands in the channel. The falls at Sault Sainte Marie, 18 ft. high, are avoided by a ship canal which, constructed by the U. S. govt., with its improvements, has cost more than \$2,330,000.

ST. MAURICE, *sāng mō-rēss'*, RIVER: river in Quebec, Canada, 363 m. long, rising 216 m. from Montreal, and emptying into the St. Lawrence at the city of Three Rivers, 9 m. from Lake St. Peter. It passes through a region with magnificent scenery, drains an area of 16,000 sq. m., has numerous small islands, and receives several tributaries of considerable size. Great quantities of lumber are cut along its banks. The channels near its mouth are crossed by two bridges 600 and 1,400 ft. long. The falls of Shawenegan, 22 m. from the mouth of the river, are 160 ft. high, and are famed for their grandeur.

ST. MICHAEL'S, *sānt mī'kēlz*: island, largest and most important of the Azores (q.v.), and except St. Mary's, the most eastern island in the group; area, 224 sq. m., or 143,000 acres.—The island is mountainous and rises in its highest summit 3,560 ft. Of the whole acreage, 40,000 acres are arable, and about 5,000 acres are divided between orange gardens and vineyards. Hot springs abound, and in the w. extremity are the Caldeiras, or boiling fountains, whence the water ascends in columns 12 ft. and then disappears in vapor. The thermometer ranges from  $48^{\circ}$  to  $84^{\circ}$ . The annual value of exports—by far the larger portion of which consists of oranges, and goes to Great Britain—is about \$425,000; and of imports, mainly from Great Britain, a little more. The chief town is Ponta Delgada; pop. (1890) 16,767. Pop. of island, about 125,000.

## ST. MICHAEL'S MOUNT—ST. NAZAIRE.

ST. MICHAEL'S MOUNT: conical and isolated rock in Mount's Bay, Cornwall, England; 3 m. e. of Penzance. It communicates with the shore by a causeway 400 yards long, which, however, is covered with water 8 hours out of the 12. The Mount is 195 ft. high, is about one mile in circumference, and is crowned by an old and picturesque castle—now a manorial residence—surmounted by a tower, on one angle of which is a projecting stone lantern, popularly called *St. Michael's Chair*. At the base of the Mount is a fishing village, of about 30 houses. This hill is to the geologist one of the most curious of localities, and, indeed, it is said to have 'excited more geological controversy than any mountain of the world.' At a very early period, St. M. M. was the seat of a religious house, and the apparition of St. Michael is said to have been seen on one of its craggy heights. At the Conquest, the monastery of St. Michael was annexed to the abbey of St. Michael in Normandy. It long remained in possession of the monks, and afterward became the residence of several families in turn, until it was sold 1660 to its present proprietors, the *St. Aubyns*.

ST. MICHEL, *săng mē-shĕl'*, MONT: extraordinary rock in Cancale Bay, in n.w. France; 7 m. s.w. of Avranches. It is a solitary cone of granite, 2 m. in circumference at the base, and 400 ft. high. It rises sheer out of a level expanse of sand, and though its elevation is not great, its perfectly flat environment and its pointed crest render it a most striking feature in the landscape. It is crowned by a church and castle, under which are conventional buildings, with their lofty turrets and high walls, and lower down are the houses of the small town. The sands are covered with water at every tide, except at neap-tides. A good road along a causeway about a mile in length connects the island with the mainland. Till 1880 the rock was accessible only by crossing the sands at low water; there being a firm track across the sands at low tide, with quick-sands to right and left. In the 8th c. an abbey which replaced an ancient temple of Jupiter was founded on the summit of the rock. A church, and an almost impregnable fortress, were afterward founded by the Normans. After the Revolution the main building was changed into a prison. The castle has recently undergone restoration.

ST. NAZAIRE, *săng nā-zăr'*: thriving seaport of France, dept. of Loire-Inférieure, at the mouth of the Loire, on the n. bank of that river, and 38 m. w. of Nantes, with which it is connected by railway. Almost unknown till recent years, it is now one of the most important ports on the w. coast of France. Here the govt. constructed a floating dock of 25 acres area; and another of 50 acres is in progress. St. N. is the port for transatlantic steamers to the W. Indies and Mexico. One cause of the rapid rise of this port is, that the navigation of the Loire is becoming yearly more difficult because of sand brought down by the river; so that the chief shipowners of Nantes prefer to leave their vessels at St. N., and have the cargoes transported inland by railway. Pop. (1851) 2,391; (1881) 16,314; (1891) 30,935.

## ST. NEOT'S—ST. PAUL.

ST. NEOT'S, *sént né'ots*: small market town, county of Huntingdon, England; 8 m. s.s.w. of Huntingdon; on low ground on the banks of the Ouse. Its beautiful parish church has a tower 156 ft. high. St. N.'s has a large iron foundry, an engine factory, breweries, steam flour-mills, etc. About a mile from the town are large paper-mills. Pop. (1871) 3,200; (1881) 4,261; (1891) 4,077.

ST. NICHOLAS, *sång né-ko-lå'*: flourishing manufacturing and market town of Belgium, in East Flanders, 20 m. e.n.e. of Ghent, on the Ghent and Antwerp railway. It is in the midst of the Pays de Waes, a densely peopled and productive agricultural district, and is said to be the seat of the largest flax-market in the world. The market is held in the great square of the town, one of the largest in Belgium, but too small to accommodate the immense numbers who crowd thither on market-days. St. N. is a manufacturing town of the first class; and among the articles largely manufactured are cotton, woolen and silk stuffs, carpets, hats, lace, tobacco, and pipes. There are print-fields, dye-works, and tanneries; and flourishing trade in shawls, linens, and other manufactured goods, as well as in flax, corn. Pop. (1891) 27,975; (1901) 31,603.

ST. NIC'OLAS, or SAINT NICHOLAS: see NICOLAS, SAINT.

ST. OMER, *sångt o-mår'*: town of France, and fortress of great strength, in the dept. of Pas-de-Calais; on the Aa, 26 m. s.e. of Calais by railway. It is surrounded by irregular but well appointed fortifications, is well built amid marshes, and contains numerous fountains and some important ecclesiastical edifices. Woolen cloths, blankets, pottery, and clay pipes are manufactured, and there is considerable general trade. A college for education of English and Irish Rom. Catholics was opened at St. O. during the penal times. It was closed during the Revolution; still exists as a seminary. Pop. (1896) 21,481.

ST. PANCRAS, *sént pán'kras*: one of the northern districts of London (q.v.).

ST. PAUL, *sånt pawl*: city, port of delivery, cap. of Ramsey co., and of the state of Minn.; on both sides of the Mississippi river; and on the Chicago Milwaukee and St. Paul, the Chicago and Northwestern, the Chicago Burlington and Northern, the Chicago Minneapolis St. Paul and Omaha, the Chicago St. Paul and Kansas City, the Great Northern, the Minneapolis and St. Louis, the Minneapolis St. Paul and Sault Ste. Marie, the Northern Pacific, the St. Paul and Duluth, and the Wisconsin Central railroads; 8 m. direct s.e. of Minneapolis, 409 m. n.w. of Chicago; 55½ sq. m. The site comprises three distinct terraces, rising from the river bottom to a beautiful plateau on which the business portion is built, and thence to a backing of hills and bluffs, called the amphitheatre, which contains the choicest residences. The river is here crossed by a free bridge which connects the main part of the city with the former suburb of W. St. Paul. The trend of the surface renders drainage easy and thorough. The supply

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of water is from two lakes a few m. back of the city. S. is laid out with much attractiveness, has broad well-kept streets and sidewalks, is lighted with gas and electricity, has several lines of street railroad connecting the recently annexed suburbs, and has efficient fire and police protection. In 1902 the net public debt was \$7,980,100; assessed val. of all taxable property, \$89,219,720; tax rate, \$3.10 on \$100. In 1902 there were 5 national banks (cap. \$3,-800,000), 11 state banks (cap. \$1,800,000), 1 incorporated bank (cap. \$500,000), 1 trust company (cap. \$250,-000), 1 savings bank, and 5 daily, 20 weekly, 1 semi-monthly, 14 monthly, and one bi-monthly periodicals. The principal public buildings are the united co. and city administrative building (now erecting, to cost \$1,000,000); the massive U. S. custom-house and post-office (cost \$350,-000); the new state capitol (cost \$250,000) Chamber of Commerce (cost \$230,000); new Y.M.C.A. building; 4 public libraries; 3 hospitals: 3 orphan asylums; 2 Magdalene reformatories; State Reform School; Home for the Friendless; city work house; and the usual co. buildings. A charming attraction is the city park, which contains 260 acres, and was laid out at a cost of \$100,000. Many of the financial and commercial buildings, churches, schools, and other educational and benevolent institutions, are imposing in material and architecture.

*Religion.*—In 1890 there were 139 religious organizations of which the Meth. Episc. church had 28; Rom. Cath. 25; Lutheran 20; Presb. 13; Prot. Epis. 12; Bapt. 11; Congl. 9; Adventist 2; Evangelical 2; Unit. 2; Jewish Congregations 3; Disciples, Reformed, and Universalists, 1 each. The total value of church property was \$109,499,919, of which the Rom. Cath. ch. had \$26,566,511; Prot. Episc., \$12,652,269; Meth. Episc., \$11,980,847; Bapt., \$9,966,895. S. is the seat of a Rom. Cath. abp., and of a Prot. Episc. asst. bp.

*Education.*—In the school year 1894-5 there were enrolled in public schools 21,276 pupils, and in private and parochial schools 7,000. There were 43 public school buildings, with accommodations for 19,000 pupils. The number of public-school teachers was 462; value of all public-school property, \$2,346,275; receipts from all sources for the year, \$464,771; expenditures for teachers' salaries \$342,197; total expenditure, \$451,378. In 1900-01 there were 9,000 pupils in private and parochial schools, and 25,297 in public schools. The available receipts of public schools for use during the year were \$565,100. There were 4 high schools and 8 private secondary schools, of which 4 were Roman Catholic, 1 Prot. Episc., and 3 non-sectarian. Higher education was afforded by Hamline Univ., (M. E.) chartered 1854, with (1901) 63 teachers, 438 students, 7,500 vols. in library, \$180,000 in grounds and buildings, and \$100,000 in productive funds; Macalester College (Presb.) chartered 1885, which had 12 instructors and 170 students, 7,700 vols. in the library; grounds and buildings valued at \$160,000; theological schools were Luther Seminary and St. Paul Seminary (R. C.); there are also 2 nurses' training schools and

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other institutions of various grades. The St. Paul public library contains 30,000 vols., the state law library 20,000, the Minn. historical society library 21,000, besides school, college, and various society libraries.

The numerous railroads and the location at the head of navigation on the Mississippi river, give St. P. a large and constantly increasing commercial importance. It has become the receiving and distributing point for an enormous region, and its trade and manufactures have large volume. In 1888 the wholesale trade aggregated \$130,071,300, a gain of \$33,000,000 in a year; the number of wholesale houses increased from 501 to 578; and the product of local and ~~suburban~~ manufactures increased from \$35,713,314 to \$51,721,245. In 1900 the manufacturing establishments numbered 1,591, with aggregate capital \$28,208,389, employing 17,593 persons, paying wages \$7,669,805, using materials val. at \$19,464,570, yielding products valued at \$38,541,030. Chief manufacturing industries were: printing and publishing, capital \$2,816,189; liquors, malt, capital, \$2,355,460; foundry and machine shop products, capital \$1,529,715; boots and shoes, factory products, capital \$1,294,435; fur goods, capital \$1,011,125. In 1903 the net public debt was \$8,852,373; assessed valuation of all taxable property, \$90,089,155; The Mississippi river is now crossed by 7 large bridges, two of which are railroad bridges.

For many years St. P. was an Indian trading post. The first building was erected 1838; Jesuit missionaries established a chapel and mission and named the place 1841; lots were plotted and a village organized 1847; a town was incorporated 1849; and a city charter granted 1854. After the incorporation of Minneapolis (q.v.) 1867, a strong rivalry sprang up between the two places, and each sought to increase its importance by annexing populous and thrifty suburbs. When the Northern Pacific railroad was completed its principal shops were located at St. P.; and 1874 the city annexed W. St. Paul, and 1884 the villages of Hamline, Merriam Park, Union Park, and Macalester. 1891, June, an attempt was made for consolidation of Minneapolis and St. P., under the name Federal City. Pop. of St. P. (1890) 133,156; (1900) 163,065.

**ST. PAUL DE LOANDA**, *sânt pawl dêh lô-ân'dâ*: seaport on the s.w coast of Africa; principal Portuguese settlement in Lower Guinea; at the mouth of the river Bengo, lat. about  $8^{\circ} 54'$  s. It is the largest and most important European settlement on this coast. The climate is comparatively healthful, the harbor is beautiful, and protected by one large and two small forts. The houses are good, the streets unpaved, and there are three churches and three market-places. Abundance of fruit and vegetables, bullocks, and goats are obtainable in the markets. Ivory and bees-wax are principal exports.—Pop. 12,000; 800 to 900 white; 2,400 mixed, and about 9,000 black.

## ST. PAUL'S CATHEDRAL.

ST. PAUL'S CATHEDRAL, in London: largest and most magnificent Protestant church in the world, and usually ranked second only to St. Peter's in Rome among religious structures of modern times. The site of the present building was occupied about 610 by a Christian church dedicated to St. Paul. This church continued till 1083, when it was destroyed by fire. From its ruins arose a much more splendid edifice—immediate precursor of the present cathedral. In 1137, the building suffered severely from fire; but, that being the great age for splendid churches, it was soon restored with great magnificence, the bishops and the people contributing most liberally to defray the cost. Old St. Paul's was the largest church in the country: 690 ft. in length, 130 in breadth, and about 150 high. The total height of the stone tower and the spire, covered with lead, which surmounted it, was 520 ft. The cloister was 90 ft. square, with a beautiful chapter-house in the centre. In 1666 the great fire of London completely destroyed the old cathedral, with a large portion of the city and most of the churches; and thereafter, Sir Christopher Wren was employed to design about 50 of the new churches, and, among others, the new cathedral. In 1673 he submitted several designs for a new cathedral, to the king, who selected one, and ordered a model of it on a large scale to be prepared. This was done by Wren, and the model still exists. Its plan is in the form of a Greek cross, having a large dome over the centre, supported on eight arches. This was, however, eventually departed from; and the new design was modelled on that of a Gothic cathedral, with an interior length of 460 ft., width 240 ft. across transepts, and a nave 94 ft. wide. The dome, and the eight supporting arches of the model, are preserved; but in the new design the angle arches lead to no spacious compartment, but to small dark passages only; while the upper portions of these great arches are blocked up with other arches, introduced for constructive purposes, but very destructive of the architectural effect. The plan of supporting the dome on eight arches had the charm of novelty, also of simplicity of construction, but it made the arches themselves too small in proportion to the great span of the dome. The constructive skill displayed by Wren in this building is universally acknowledged and admired, but it is thought that he has allowed the mechanical exigencies of the work to interfere too much with its decorative requirements. The dome, for instance, is constructed on a new and most masterly principle, the thrust of the vault being counterbalanced by the weight of a brick cone, which is carried up to support the stone lantern over the exterior dome. But, to carry this out with the least expenditure possible, the drum, or plain cylindrical wall under the dome, is sloped inward, so that the columns with which it is decorated appear to the spectator below to be falling inward, producing a painful and disagreeable effect. Great exception is taken to the fact that the external dome is of wood, and not of stone, and so liable to premature decay; but the same may be said of the wooden roofs over the vaults of

## ST. PETER—ST. PETERSBURG.

Gothic cathedrals; and by making it of wood, Sir Christopher was enabled to raise it to a height which makes it one of the noblest buildings of the kind in the world. The design of the nave, from the classic vaulting with which it is covered, is necessarily to a great extent a failure. When domes, or intersecting vaults, are used in a classic building, the compartments must be about square; there can therefore be but a small number of nave piers, as compared with those of a Gothic cathedral, and the perspective effect of the latter is thus entirely lacking. The same is the case at St. Peter's. St. Paul's dome is particularly successful, and is admitted to be the finest in existence; no other being so graceful and varied in outline yet so massive in general effect. Its height from the pavement to the top of the cross is 404 ft. The w. front, as seen from Ludgate Hill, is most striking; the two campaniles group most harmoniously with the dome, and, together with the portico, produce a pleasing and remarkable effect. This front must, however, be condemned, with the screen-walls, if strictly criticised. The upper portico *appears* to indicate an upper story, where there is none, and the actual construction and true form of the building are not expressed at all. St. Paul's is the burial place of many heroes and men of distinction, whose tombs are in the crypt, and whose monuments adorn the interior of the cathedral. Among these are Nelson and Wellington, Collingwood, Abercromby, Moore, Howe, St. Vincent, Picton, Rodney, and many other celebrated soldiers and sailors; Howard, Johnson, Reynolds, Barry, Opie, West, Astley Cooper, Sir William Jones, Sir Christopher Wren, and other distinguished civilians. Several of the monuments are by Flaxman, Chantrey, Bacon, and Rossi; but it must be confessed that they savor generally too much of heathen mythology, to be appropriate in a Christian cathedral.

ST. PETER: city, cap. of Nicollet co., Minn.; on the Minnesota river, and on the Chicago and Northwestern and the Chicago St. Paul Minneapolis and Omaha railroads; 11 m. n. of Mankato, 75 m. s.w. of St. Paul. It contains the state hospital for the insane (cost \$500,000); Gustavus Adolphus College (Luth.), 17 instructors, and 245 students; county court-house; 8 churches; several flour-mills; foundry and machine shops; furniture factory; 1 national bank (cap. \$50,000); 1 state bank; and 3 weekly periodicals. Pop. (1880) 3,436; (1890) 3,671; (1900) 4,302.

ST. PETERSBURG, *sānt pē'terz-bērg*: maritime govt. of Russia; one of the Baltic Provinces, between Lake Ladoga on the n.e and Lake Peipus on the s.w.; 20,750 sq. m. The soil is damp and thin; and woods and marshes cover two-thirds of the level surface. In the vicinity of the capital, much ground is in market gardens. The usual crops are grown, but the product of grain is much less than the consumption. The chief town is the cap., *Saint Petersburg* (q.v.). Pop. (1897) 2,107,691.

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ST. PETERSBURG: city, cap. of the Russian empire, and of the govt. of St. P.; built upon, and around the lower branches of, the Neva, and on the shores of the e. extremity of the Gulf of Finland, 16 m. e. of Cronstadt, its port; lat.  $59^{\circ} 56' n.$ , long.  $30^{\circ} 19' e.$  The Great Neva, the most southern branch of the Neva, divides the city into two great sections—the Petersburg Side on the n., and the Great Side on the s. The former is on the islands formed by the delta of the Neva, chief of which are the Vassili Ostrov, the Citadel Island, and the islands Aptekarskoi, Kammennoi, Petrovskoi, Krestovskoi, and Elaghinskoi. The Great Side, s. of the Great Neva, is compactly built, and contains the residences of the court and of the nobility and more than half the population. The city covers 42 sq. m., and is 56 ft. above sea-level on plains formerly malarious marshes, now drained and laid out in gardens.

The climate, severe in winter, is pleasant and mild in summer; mean temperature in summer  $62^{\circ}$ ; winter,  $14^{\circ}$  F. The extremes of temperature are  $99^{\circ}$  and  $-51^{\circ}$ . Fourteen arms of the Neva, irrespective of smaller branches, ramify through St. P., and there are seven canals.

*General View of St. Petersburg.*—Approaching the city from Cronstadt (q.v.), the port and fortress of the Russian cap., the first indications of the great city are the gilded dome of the Church of St. Izak, and the lofty spire of the Admiralty, rising apparently from the water's edge. The Admiralty Square faces the English Quay on the s. bank of the Great Neva, and may be considered the centre of the city. From the spire, with its numerous galleries, the whole plan of the city can be clearly seen. Right opposite it is the populous Vassili Ostrov, on whose shore are the Bourse, Acad. of Sciences, Corps of Cadets, etc. To the n. is the Citadel Island, and further n. the densely-peopled Aptekarskoi Island, and the Kammennoi, and other islands, mostly studded with wood-embosomed villas, and laid out in charming gardens. Considering the river on the n. as the chord, and the Admiralty as the centre, the semicircle that might be drawn with a radius of  $2\frac{1}{2}$  m. would nearly describe what is called the Great Side of St. P. This section of the city is divided into three or four portions by the Moika, St. Catharina, Fontanka, and New canals; and it is intersected by three spacious streets, which radiate e.s.e., s.e., and s. from the great centre, the Admiralty. The streets are named respectively the Nevski Prospekt (Neva Perspective), Gorokhovaia Oulitza (Peas Street), Vosnenskoi Prospekt (Resurrection Perspective). Extensive suburbs are rising also on the e. bank of the Neva. There are five railway stations.

*Streets, Squares, Monuments, Bridges, Churches, etc.*—the street architecture of St. P., unlike that of Moscow, with its pale-yellow walls and red and green roofs, is almost destitute of color. Here the rigid, military aspect of the streets, with the houses drawn up in long regular lines of gray, or massed in blocks like the squares of battalions, is one of the first features of the Russian capital that impress a traveller. Except in the more fashionable quarters,

the greater number of the houses are of wood. St. P. contains 500 streets, and among these, lanes and alleys are unknown, as, while the finest streets have a breadth of 120 ft., the narrowest are 42 ft. broad. The Nevski Prospekt is the most splendid street; and for architectural grandeur, as well as for proportions, and for variety, is considered the finest street in Europe. It is 130 ft. broad, and about 4 m. long, planted on both sides with trees, contains a large number of most beautiful palaces, of highly ornamented churches, and splendid warehouses, and increases in breadth and magnificence as it advances from the Admiralty. For the first mile it does not contain more than about 50 mansions, but each colossal. The houses are of brick, faced with stucco, are three and four stories high; and many are furnished with ornamental porches, colonnades, gilded balconies, and parapets that gird the flat roofs. About ten other streets are distinguished for grandeur, though none equals the Nevski Prospekt. There are 64 squares in the city; of these the Admiralty Square is one of the most famous. It contains one mass of buildings, presenting to the Neva a fine façade, nearly half a m. in length, while its sides are 650 ft. long. In the Palace Square, adjoining the Admiralty, stands Alexander's Column, an immense monolith, erected 1834. It consists of a shaft of red granite, on a pedestal of the same, and supporting a capital, above which rises the figure of an angel and a cross. The length of the shaft is 80 ft., and of the whole column 150 ft. Peter's Square contains the noble and well-known equestrian statue of Peter the Great, 18 ft. high, erected 1768-82. The Field of Mars, large enough for 40,000 men to perform military evolutions, contains the bronze statue of Suwaroff, and a monument to Catherine II.—*Bridges*.—Bridges numbering 150 unite the islands, cross the canals, and span the Neva. The Annitekhoff bridge, across the Fontanka canal, consists of five arches, is 110 ft. long, and decorated with four spirited groups, in bronze, of wild horses and their tamers, by a native artist. The Nikolayevski Bridge, magnificent structure in granite, only permanent bridge except one that crosses the Neva—the others being temporary bridges supported on boats, and removed every autumn and spring—was completed 1850. It crosses the Neva from the English quay on the s. bank to the Vassili Ostrov shore, is 1,200 ft. long, and consists of 7 elegant arches, on ponderous piers of granite. At the n. end of the bridge, a drawbridge affords passage to ships. No part of St. P. affords a foundation solid enough to support weighty structures. The foundation for the Nikolayevski Bridge was not obtained until three sets of piles had been driven into the oozy bed of the river, one set on top of another, and so close, that all the timbers touched each other all the way across.—*Palaces, etc.*.—St. P. might be called a city of palaces, from their number. The Winter Palace, destroyed by fire 1837, but soon rebuilt, is certainly the largest, and, in one sense, most probably the most magnificent palace in the world. It is 450 ft. long and 340 wide, has an imposing

## ST. PETERSBURG.

façade, and contains 800 residents, and, during the residence of the emperor within it, is inhabited by 6,000 people. It has numerous ample halls, decorated in the most artistic manner, and containing collections, furniture, and articles of *virtu* of immense value. The Hermitage, on the Neva as is the Winter Palace, is connected with it by several galleries. Its gallery of 2,000 paintings is famous for its specimens of the Spanish school. The library of this palace contains the collections of Diderot, Voltaire, etc., and has in all 120,000 vols. The Annitchkoff Palace is the residence of the czarowitch. The Imperial Library, one of the first in Europe, contains 1,100,000 vols. and 35,000 MSS. The gilded tower of the Admiralty buildings, said to be visible from Cronstadt, and certainly in these flat lands a conspicuous landmark, is 230 ft. high. The Old and New Arsenals are surrounded by cannon captured from the Turks and Persians.—*Churches*.—St. P. contains about 350 churches, 300 of which are orthodox. Within the Citidal stands the Church of St. Peter and St. Paul, finished 1727. It is surmounted by a slender tower, crowned by a gilded spire, the whole being 345 ft. high. The cathedral of St. Izak, though destitute of architectural beauty, is remarkable for rude magnificence, and is one of the most considerable buildings of modern times; it is 330 ft. long, 290 ft. broad, 310 ft. high; surmounted by a great gilded dome, and by four smaller domes. The domes are of bronze, and the value of the plate gold by which they are overlaid is stated at \$250,000. Each of its four sides is adorned with a peristyle of 12 or 16 red granite monolith pillars from Finland. Other notable churches, are the Cathedral of Our Lady of Kazan, and the Vladimir Church.

*Academies, Scientific Institutions, etc.*—The Imperial public library contained 1886 more than 1,000,000 volumes and 40,000 manuscripts. The Acad. of Sciences, with library of 500,000 books and 13,000 MSS., was founded by Peter the Great 1725. In the Institute of Technology (founded 1829) 200 pupils are taught silk-spinning, manufacture of cloth, silk, and woolen stuffs, wood-carving, and engraving on copper. The Univ., founded 1829, is attended by 1,400 students and has between 80 and 100 professors and 150,000 volumes in its library. The New National Museum of Antiquities, Painting, and Sculpture, completed 1851, is a noble structure, entirely of marble and metal. There are numerous benevolent institutions, a number of splended theatres; and an Italian opera, a magnificent structure.

*Manufactures and Commerce*.—About 3,000 ships annually leave the port. In 1882 the imports at St. P. were \$41,875,621, and at Cronstadt, its scaport, \$565,295—total \$42,440,916; and exports, at St. P. \$9,063,802, at Cronstadt \$31,867,102—total \$40,930,904. Of the manufacturing cities of Russia, St. P. is one of the most important. The principal private factories are mills for spinning and weaving cotton. The immense imperial establishments produce admirable specimens of Gobelin tapestry, mirrors, articles in bronze, playing-cards, crystal, and porcelain.

## ST. PETER'S CHURCH.

St. P. is a little less than two centuries old, but it takes rank among the first capitals in the world. It was founded by Peter the Great 1703, May 27. After a long struggle against the severe climate, insalubrious from exhalations of wide-extended marshes, and from the arctic rigor which even yet can cover the Neva with ice  $4\frac{1}{2}$  ft. thick, at length the town was founded and declared the capital 1712. Under the successor of Peter, the improvement, embellishment, and extension of the city went on. Catharine II. constructed the great canals which, while they afford ready communication, serve also to drain the marsh-lands, to render the atmosphere more healthful, and to mitigate the rigors of winter. The city suffered great damage and the loss of several hundred lives 1824 from an inundation of the Neva; and every April, when the ice breaks up, the lower regions of the city are threatened with a similar disaster. At St. P., all the ministers from foreign courts are bound to reside. The municipal receipts 1884 were \$2,808,380; expenditures \$2,780,707. City affairs are in the hands of a municipality, elected by three kinds of electors, and practically a dept. of the chief of police, though under a separate gov.gen. of almost unlimited authority.—Pop. (1885) exclusive of suburbs 861,-303; with suburbs 929,100; (1900) 1,439,375.

**ST. PETER'S CHURCH**, at Rome: largest cathedral in Christendom. It stands on the site of a much older basilica, founded by Constantine 306, over the reputed grave of St. Peter, and near the spot where he is said to have suffered martyrdom. This basilica was of great size and magnificence; but had fallen into decay, when Pope Nicholas V. 1450, resolved to erect a new cathedral, worthy of the dignity of the Roman pontificate, then in the zenith of its power. A design was accordingly prepared by Rosselini on a very grand scale, and the tribune was begun, when the pope died. The new building remained neglected for about half a century, when Julius II. resolved to continue the work, and employed Bramanté, then celebrated as an architect, to make a new design. The design still exists. The foundation stone was laid 1506; and the works carried on with great activity till the death of the pope 1513. Bramanté, who died the following year, was succeeded by Baldussare Peruzzi. Almost every architect who was employed during the long course of time required for the erection of this great edifice, proposed a new design. That of San Gallo, who succeeded Peruzzi, is one of the best, and is still preserved. It was not till his death 1546, when the superintendence devolved on Michael Angelo, then 72 years of age, that much progress was made. He designed the dome; and had the satisfaction, before his death in his 90th year (1564), of seeing the most arduous part of the task completed; and he left such complete models of the remainder that it was carried out exactly in conformity with his design by his successors, Vignola and Giacomo della Porta, and successfully terminated by the latter in 1590 in the pontificate of Sixtus V. The design of Michael Angelo was in the form of a Greek cross, but the building was ac-

tually completed as originally designed by Bramanté as a Latin cross, under Paul V., by the architect Carlo Maderno. The portico and façade were also by him. He is much blamed for altering Michael Angelo's plan, because the result is that the projecting nave prevents the dome (the *great* part of the work) from being well seen. The façade is considered paltry, and too much cut up into small pieces. It is observable that this entrance facade is at the *east* end of the church, not the west, as it would certainly have been north of the Alps. But in Italy the principle of orientation was little regarded.

Maderno's nave was finished 1612, and the façade 1614, and the church dedicated by Urban VIII. 1626. In the front of the portico is a magnificent atrium in the form of a piazza, inclosed on two sides by grand semicircular colonnades. This was erected under Alexander VII. by the architect Bernini.

The façade of the cathedral is 368 ft. long and 145 ft. high. As already mentioned, the design is not generally approved, but some allowance must be made for the necessities of the case. The balconies in the front were required; as the pope, at Easter, always bestows his blessing on the people from them. Five open arches lead into a magnificent vestibule, 439 ft. long, 47 ft. wide, 65 ft. high, and adorned with statues and mosaics. Here is preserved from the old basilica, a celebrated mosaic of St. Peter walking on the sea, called the Navicella, designed by Giotto, 1298. The central bronze doors also are relics saved from the old church. On entering the interior of the cathedral, its enormous size does not produce the impression which its grandeur of proportions should give the spectator: this arises from the details all being of excessive size. The pilasters of the nave, the niches, statues, moldings, etc., are all such as they might have been in a much smaller church, magnified. There is nothing to mark the scale, and give expression to the magnitude of the building. The figures supporting the holy water fountain, e.g., appear to be those of cherubs of a natural size, but when more closely approached, are found to be six ft. in height; and the figures in the niches are on a still more colossal scale. The cathedral is 613 ft. long, and 450 ft. across the transepts. The arch of the nave is 90 ft. wide, and 152 ft. high. The diameter of the dome is 195 $\frac{1}{2}$  ft. From the pavement to the base of the lantern is 405 ft., and to the top of the cross 434 $\frac{1}{4}$  ft. The dome is thus 50 ft. wider, and 64 ft. higher than that of St. Paul's (q.v.), in London.

The walls of the interior are adorned with plates of richest marbles, and copies of the most celebrated paintings executed in mosaic. The arch piers have two stories of niches with statues of saints; but these, unfortunately, are in a debased style of art. The pavement is all in marbles of different colors arranged in beautiful patterns designed by Giacomo della Porta. The dome is the finest part of the cathedral: it is supported on four great arches. Immediately under the dome stands the high altar over the grave of St. Peter. It is surmounted by a magnificent baldacchino or canopy,

## ST. PETER'S COLLEGE—SAINT PIERRE.

in bronze, designed by Bernini 1633, and executed with bronze stripped from the Pantheon by Pope Urban VIII. Beneath the high altar is the shrine, in which 112 lamps burn day and night. The building is adorned with many remarkable monuments and statues, some of them by Michael Angelo, Canova, and Thorwaldsen. The most of the monuments are erected in memory of the popes, but there is one to 'James III., Charles III., and Henry IX., kings of England,' the remains of the exiled Stuarts being buried in the vaults beneath. The 'Grotte Vaticane,' or crypt, has been most carefully and religiously preserved during all the changes and works of the cathedral; so much so, that the ancient pavement remains undisturbed.

As a work of architectural art, St. Peter's is the greatest opportunity which has occurred in modern times; but, notwithstanding the great names of the men who were engaged upon the work, it is universally admitted to be a grand and lamentable failure.

ST. PETER'S COLLEGE, in Cambridge, England; commonly called PETER-HOUSE: founded before any other college now existing in England—viz., 1257, by Hugh de Balsham, Bp. of Ely, and endowed by him 1282, with a maintenance for a master and 14 fellows. In addition to the 14 original foundation-fellows, there are two bye-fellows on different foundations, and 23 scholars. The master is elected by the society.

ST. PETER'S LE PORT, *lēh pōr*; commonly ST. PETER'S: chief town of Guernsey, one of the Channel Islands: see GUERNSEY.

ST. PHILIP, FORT: see JACKSON, FORT.

ST. PIERRE, *sāng pē-är'*: town of the island of Bourbon (q.v.), or Réunion, on the s.w. coast, 34 m. s.w. from Saint Denis. Pop. (1899) 27,900.

ST. PIERRE': former chief town of the island of Martinique (q.v.), belonging to France; at the head of a bay, 16 m. n.w. of the cap., Fort de France. It was the largest town in the Antilles, with a pop. of 26,000, but was effaced by a volcanic eruption in 1902.

SAINT PIERRE', JACQUES HENRI BERNARDIN DE: French writer: 1737, Jan. 19—1814, Jan. 21; b. Havre. He received his education at Caen and Rouen, and entered the govt. dept. of civil engineers. On his dismissal 1761, he wandered about the continent several years, endeavoring to realize his dream of a republican colony. He returned to France 1766, and soon obtained a commission as engineer for the Mauritius; but after three years in the island, he returned to Paris. At this time he wrote the story *Paul et Virginie*. The little book, with its passion, its simplicity, its tenderness, though open to criticism as too exuberant in sensibility and too gaudy in style, achieved immense success, and has been translated into many languages. St. P. passed through the storms of the Revolution in safety, and secured the patronage of Napoleon. Besides *Paul et Virginie*, he wrote other tales, essays, and several plays.

## ST. PIERRE AND MIQUELON—SAINTS.

ST. PIERRE, *sāng pē-är'*, AND MIQUELON, *mē-kēl-lōng'*: French colony on the isles of Little and Great Miquelon and Saint Pierre, s. of Newfoundland, opposite the mouth of the Gulf of St. Lawrence; area about 81 sq. m. The ports are frequented by vessels engaged in cod fishing. The cap. is St. Pierre. Pop. of colony about 4,800.

ST.-PIERRE-LES-CALAIS, *sāng-pē-är'lā-kā-lā'*: town of France, dept. of Pas-de-Calais. It may almost be regarded as a s.e. suburb of Calais, which it nearly adjoins; but has grown to a size exceeding Calais itself. It is noted for its manufactures of Tulle (q.v.). Other branches of industry are actively prosecuted, e.g., manufactures of leather and of beet-root sugar. Pop. (1881) 30,786.

ST. PÖLTEN, *sānt pō'l'ten*: fortified town of Lower Austria, 61 m. w. of Vienna, by rail. It is the seat of a cathedral, and has manufactures of cotton, paper, glass, and stoneware goods. Pop. (1880) 10,015.

ST. QUENTIN': see QUENTIN, ST.

ST. REGIS, *sānt rējīs*: village on the s. bank of the St. Lawrence, partly in Huntingdon co., Quebec, Can., and partly in Franklin co., N. Y. It was settled 1760 by the St. Regis tribe of Iroquois Indians, and is inhabited solely by their descendants. The British tribe, occupying the Canada side, number between 700 and 800; the American, between 600 and 700. They all speak the Mohawk language, and are mostly Rom. Cath. in religion.

SAINTS: name in the New Test. for all members of the Christian community, however humble or weak; but restricted by ecclesiastical usage from very early times to those who, whether under the old or under the new dispensation, have been distinguished for personal virtues and for eminent services to the church. Of the old dispensation, the 'patriarchs and prophets' are commonly designated as saints: but the word is used much more of the Christian Church. In the ages of persecution, the quality which most of all challenged the admiration and reverence of the faithful was naturally courage and constancy in the confession of Christ and the defense of the Christian faith; thus the earliest of those whom the church reverences for sanctity of life, are mostly revered also as champions of the faith. In general, however, the S. are distributed into several classes, chiefly in relation to the special services which the church has appropriated to their honor: (1.) Apostles and Evangelists; (2.) Martyrs; (3.) Confessors, name applied primitively to those who had shown great constancy in their confession of Christ, though without the final crown of martyrdom; but in later times applied to all who, without being martyrs, were eminent for sanctity of life; (4.) Doctors or men eminent for sacred learning; (5.) Virgins; (6.) Matrons and Widows, distinguished for holiness of life. Anciently the character and appellation of saint was bestowed on individuals, as it were, by acclamation, and by the common consent of the members of the particular Christian community to which the individual belonged, or to which his merits were most familiar. The earliest

## SAINTS.

instances (see the letter of the Church of Smyrna on the martyrdom of Polycarp) of such judgments as to individuals were in the case of the martyrs. Altars were erected at their tombs, and the people assembled for worship on the anniversary of their martyrdom. The honors of the martyrs, even before the age of persecution had passed, were extended to confessors of the faith, and eventually to all eminent for holiness, especially to those who obtained the reputation of performing miracles. The names of those who were so honored were placed in the register (or diptych) of each church. It was not, however, till a comparatively late period that a regular form of procedure was established in the Roman Church for testing the claim of individuals to the authentic reputation of sanctity. From the 4th c. onward, examples of reference to Rome—e.g., in the Acts of Virgilius, Bp. of Trent—are cited by Rom. Cath. writers. But the first recorded example of a solemn and public decree is in the case of Udulric or Ulric, Bp. of Augsburg, to whom the honors of sanctity were adjudged 993 by Pope John XVI. (see Hardouin, Concil. VI. P. I., p. 727). Since that time the procedure of the Church of Rome as to the public recognition of the saints has been matured and methodized. It consists of two stages, ‘Beatification’ and ‘Canonization.’ (See these titles.) For the details of both, see a special work by the learned Pope Benedict XIV. (Lambruschini). The inquiry in both procedures, usually protracted and aiming at rigorous scrutiny (see ADVOCATUS DIABOLI), is conducted by the congregation of cardinals, called the Congregation of Rites; in the afternoon the pope goes solemnly to pay reverence to the image of the new saint. The effect of the final canonization is—to declare (1.) that the canonized person is to be recognized as a saint throughout the entire church; (2.) that he is to be invoked in the public prayers; (3.) that churches and altars may be erected in his honor; (4.) that he may be invoked in the mass and public service; (5.) that a festival may be celebrated in honor of him; (6.) that his image may be set up in public; and lastly, that his relics may be preserved and publicly honored. The solemnity of canonization, which is preceded by a new inquiry similar to that of the beatification, and a new judgment of the congregation of rites confirmed by the pope, is one of the most gorgeous in the entire ceremonial of the Roman Church. It takes place in the Vatican Church (St. Peter’s), and is generally attended by a large assembly of bishops from various parts of the church. The Church of St. Peter’s is specially decorated at a vast cost for the ceremonial, and the entire expenditure on such occasions has been estimated at not less than \$100,000. See INVOCATION OF ANGELS AND SAINTS: RELICS.

## SAINTS' DAYS—SAINT SIMON.

SAINTS' DAYS: days ecclesiastically set apart in honor of particular saints and martyrs. The practice dates from the times of persecution, when people were wont to assemble at the tombs of martyrs on the anniversary of the martyrdom. In the multiplication of such celebrations, a record of the days fixed for each saint or martyr became necessary: this was called *calendarium*. In some cases the saint's day was kept a holiday of obligation, in which no servile work was permitted to be done. Other days, of various minor degrees of solemnity, are called double (greater or lesser), semi-double, and simple, from the peculiar form of the office set apart for each. In particular countries, dioceses, or parishes, and churches, the day of the patron saint is specially celebrated.

SAINT SEBASTIAN: see SAN SEBASTIAN.

ST. SERVAN, *sāng sēr-vāng'*: seaport of France, dept. of Ille-et-Vilaine; at the mouth of the Rance, opposite St. Malo (q.v.), to which there is communication by land at low-water. The harbor, called Port Solidor, is secure. St. S., called often a suburb of St. Malo, is a watering-place, and carries on ship-building, and considerable commerce, especially in timber. Pop. (1896) 12,240.

SAINT-SIMON, *sānt sī'mon*, F. *sāng sē-mōng'*, CLAUDE HENRI (Comte DE SAINT-SIMON): founder of French socialism: 1760, Oct. 17—1825, May 19; b. Paris; of a different branch of the same family as the Duc de S. (q.v.). Although destined to become the propagator of some of the most revolutionary and democratic ideas of modern times, he was reared in a hotbed of aristocratic prejudice. Nevertheless, from his earliest years, S. showed hostility to the established system of things, mainly, however, it seems (according to the anecdotes in vogue) from a certain puerile vehemence and obstinacy of nature. He was cursed, moreover, with vanity. What are we to think of a lad scarcely 16 giving his servant orders to rouse him every morning with such a summons as *Levez-vous, Monsieur le Comte, vous avez de grandes choses à faire*, especially when he had *nothing* to do? S. was well educated in philosophy, like most of the young nobles of his time, and had D'Alembert among others for his tutor. At 18 years of age he entered the army, served with the French forces in aid of the colonies, in America; and distinguished himself on the day when Lord Cornwallis surrendered at Yorktown, Va. Captured by the British on his return home, he was taken to Jamaica, where he remained till the peace in 1783 restored him to liberty and France. But the monotony of garrison life did not suit his restless spirit; and 1785 he quitted the service, and travelled in Holland and Spain, busying himself with various industrial schemes, such as connecting Madrid with the sea by a canal, and introducing diligences into Andalusia—the latter of which proved successful. The great Revolution found in him—though of the old nobility—an enthusiastic disciple; and he voted in his patrimonial canton for the abolition of titles of nobility, but did not take any part in the political events

that followed. His energies were then given to enriching himself; though as his disciples have naïvely observed, it was necessary that he should acquire wealth, that he might devote himself to ideas. During the Revolution, while in temporary imprisonment in the Luxembourg, visions of a new social system, based on scientific principles, instead of on political conventionalities, first unfolded themselves before his ardent imagination. His ancestor Charlemagne appeared to him one night in a dream, and said: *Depuis que le monde existe aucune famille n'a joui de l'honneur de produire un héros et un philosophe de première ligne. Cet honneur était réservé à ma maison. Mon fils, tes succès comme philosophe égaleront ceux qu' j'ai obtenu comme militaire et comme politique.* S., though now 38 years of age, began to study 'science,' of which he had been ignorant. His plan was pleasant and ingenious: he took a house opposite the *École Polytechnique*, and invited to his table the professors of mathematics, of physics, and of astronomy, from whose lips—in the intervals of their feeding—he acquired the necessary information. Then he changed his lodgings, and fixed himself near the *École de Medicine*; where, pursuing the same method with the physiologists, he learned from them something of the structure of organized bodies. In 1801, he married, and threw open his *salons* to all the savants and artists of Paris; but his lavish hospitalities—rather prodigalities—soon dissipated the fortune that he had amassed during the Revolution. Meanwhile a notable social idea seized him. Hearing that the husband of Madame de Staél had just died, he resolved to marry the widow, whom he considered the only woman fit to associate with him in his great project for regeneration of society. To be sure there was a little impediment in the way—viz., his being already married; but in France there was no difficulty in getting a divorce; and S. was soon as good as a bachelor again. Befaking himself to Coppet, he unfolded his plan to the lady, and begged her concurrence, urging his suit (it is said) by the most impressive considerations: *Madame, vous êtes la femme la plus extraordinaire du monde; comme j'en suis l'homme le plus extraordinaire; à nous deux nous aurions, sans doute, un enfant plus extraordinaire encore.* Madame de Staél, however, declined to further thus his philanthropic projects; and the reformer—now beginning to be in straits—published at Geneva *Lettre d'un Habitant de Genève à ses Contemporains* (1803) in which he proposes (among other things) that there should be an annual subscription for the benefit of men of genius—mathematicians, physicians, chemists, physiologists, littérateurs, painters, and musicians—that spiritual power should be in the hands, not of the clergy, but of savants, and temporal power in the hands of the landed proprietors; while the privilege of choosing 'chiefs of humanity' should belong to everybody: finally, he asserts that religion is only a human invention. S.'s proposal was not even noticed, either by 'men of genius' or by others; and in a few months he was glad to accept the office of copyist

at the Mont-de-Piété. Even this humble means of making a livelihood he had to resign from ill-health; and he would probably have died of starvation had he not met an old revolutionary friend, Diard, who took him into his house and furnished him with means to publish one of his most important works *Introduction aux Travaux Scientifiques du Dix-neuvième Siècle* (Par. 1807). The death of Diard 1810, again plunged S. into misery. Soon, we find him writing to Lacépède, Cuvier, Degérando, Cambacérès, etc., in this style: ‘*Monsieur,* soyez mon Sauveur, je meurs de faim . . . Depuis quinze jours, je mange du pain et je bois de l’eau; je travaille sans feu et j’ai vendu jusqu’à mes habits pour fournir aux frais des copies de mon travail.

There is nothing ludicrous here—it is the plain unaffected cry of utter want. In 1812 his wretchedness came to a crisis; he left Paris, betook himself to Peronne, where he fell dangerously ill, but recovered through the attentions of his family, who now settled a small pension on him; he then returned to Paris. After the Restoration, he began—in spite of his extravagant vanity—to reap the usual reward of enthusiasm and perseverance—a crop of disciples. Of these the most distinguished was Augustin Thierry, who assisted him in the redaction of his *Réorganisation de la Société Européenne*—a work intended to demonstrate the inutility of the Congress of Vienna, and the incapacity of all mere political congresses to establish durable peace. He proposes the institution of a European parliament, having the right to arbitrate in cases of difference among the nations; and adds that the first step toward the reorganization of Europe is the union of France and England. 1817–8, he published *L’Industrie, ou Discussions Politiques, Morales, et Philosophiques*, written partly by himself and partly by his disciples. The third vol. is the work of the celebrated Auguste (q.v.). By this and other literary enterprises S. had exhausted all his funds, and as he saw no prospect of getting any more, he resolved to commit suicide, and actually discharged a pistol at his own head 1823, Mar. 9, which, however, only deprived him of an eye. The last, and by far the most remarkable work of S., is *Nouveau Christianisme* (Par. 1825), which contains his final and matured convictions. According to him, Christianity has been diverted from its original design. Progressive by nature, and meant to be modified by the changing circumstances of times and countries, it has been stiffened into unalterable dogmas by ecclesiastical conclaves. The clergy, whose mission is to instruct, are ignorant of the thoughts and manners of modern times, and have exhibited a complete and deplorable incapacity. Protestantism is no wiser than Romanism: it has set its face against the fine arts, and has shown a cruel and fatal indifference to the physical amelioration of the poor. But genuine Christianity embraces in its consideration all the needs of humanity. From its grand principle, ‘Love one another,’ it derives the proposition, that ‘religion ought to direct all the social forces toward the moral and physical amelioration of the class

## SAINT-SIMON.

which is at once the most numerous and the most poor.' From this premise is deduced the idea of a social hierarchy based on capacity and labor—the new spiritual church comprising all functions and professions, sanctifying science and industry, regulating vocations, fixing salaries, dividing heritages, and taking the best measures to make the labors of each conduce to the good of all. S. did not live to develop his principles in detail as far as they would have logically carried him; but in the writings of Comte we find the legitimate terminus and result of his sweeping speculations.—Much in the character and system of S. is unquestionably false, exaggerated, even laughable; but some of his criticisms are just, and some of his theories are at least suggestive; and the man who reckoned among his disciples names like Augustin Thierry, Auguste Comte, Olinde Rodrigues, Bailly (de Blois), Léon Halévy, Duvergier, Bazard, Enfantin, Cerclet, Buchet, Carnot, Michel Chevalier, Henri Fournel, Dugied, Barrault, Charles Duveyrier, Talabot, Pierre, Leroux, Jean Reynaud, Emile Péreire, Félicien David, Saint Cherou, Guérout, Charton, Cazeaux, Dubochet, and Stéphane Mony—is not to be entirely disregarded, even though his system as a whole gives no signs of vital power.

SAINT-SIMON', LOUIS DE ROUVRAY (or ROUVROY), Duc de: 1675, Jan. 16—1755, Mar. 2; b. Versailles; of a family claiming descent from Charlemagne. After a careful education, he entered the army 1693, but considering his promotion not equal to his deserts, he resigned, 1702, and for the remainder of his life was a sort of court statesman. S.'s position was as singular and as anomalous as his character. Profoundly ambitious, his pride was yet greater than his ambition. His ideas of aristocratic rights and privileges were perhaps more outrageously fanatical than any others on record in modern ages; and the whole aim of his life was to nullify the influence of the parliament, and to place the govt. of France in the hands of the *grands seigneurs*—the great territorial lords. The middle class he abhorred; and the rise to distinction of any one belonging to that order—any *novus homo*, tortured his patrician soul almost beyond endurance. His career of haughty conspiracy against the political rights of commoners, marks him as the most thoroughgoing of oligarchs. During the latter part of Louis XIV.'s reign, and the regency of the Duke of Orleans, he received much consideration, and his aristocratic policy more than once had a temporary triumph; but with the accession to the regency of the Duke of Bourbon he fell into disgrace, and withdrew from public life. S.'s last years were occupied chiefly in composing his famous *Mémoires*, a brilliant work of incalculable historical value. The *Oeuvres* appeared 1791 (13 vols.); an ed. by Cheruel and Regnier (20 vols.) 1856 *et seq.*, and completely revised 1873-77. Baschet's monograph *Le Duc de Saint-Simon* (1874) revealed that much yet remained to be published; Boislisle undertook 1880 a fresh issue of the *Mémoires*; and 1881 Faugère gave us vol. I. of *Écrits inédits de S. Simon*.

ST. SOPHIA, *saint sō-fē'ā*, CHURCH AND MOSQUE celebrated structure at Constantinople, long an object of great interest. It was built originally by Emperor Constantine 325-326, at the translation of his seat of empire from Byzantium; and is named as being dedicated, not as commonly supposed, to a saint of that name, but to the *Hagia Sophia* (Holy Wisdom), that is, to the Eternal Wisdom of God, or the Logos, the second of the hypostatic distinctions in the Trinity. The building of Constantine was rebuilt and enlarged by his son Constantius; and the second church of Constantius having been destroyed 410, was rebuilt by Theodosius the Younger 415; and it last unaltered till the celebrated Nika Sedition, or Battle of the Factions of the Circus, under Justinian 532, in which it was totally destroyed. The present building is substantially that erected by Justinian 532, in expiation of the sacrilege. Its erection occupied less than seven years, and the history of the work and of the details of its materials and construction is full of marvels. Ten thousand workmen are said to have been employed. Materials were supplied from every part of the empire, and comprised the remains of almost every famous temple of the ancient paganism. The sedilia of the priests and those of the patriarch were of silver gilt. The dome of the tabernacle was of pure gold, and was surmounted by a gold cross weighing 75 lbs., and encrusted with precious stones. All the sacred vessels and other apparatus were of gold. The altar cloths were embroidered with gold and pearls; and the altar itself was composed of a mass of molten gold, in which were thrown pearls, sapphires, diamonds, onyx, and every other object which could raise its costliness to the highest imaginable degree. The total cost of the structure is stated by the ancient authorities at 320,000 pounds. Some regard this as pounds-weight of silver, others as of gold. One of the latest writers on the subject, Nestor (Eastern Church, I. 237), adopts the latter estimate, and thus computes the cost about \$65,000,000.

The building has an area of 70,000 sq. ft. It may be described as a square of about 240 ft., forming interiorly a Greek cross. Around the interior extends a women's choir or gallery, supported by magnificent pillars mostly borrowed from ancient buildings. In the centre rises a dome (diameter 107 ft., height 46 ft.) supported by four great semi-domes, which in their turn rest upon smaller semi-domes, the whole presenting a series of unequal beauty, and with the advantage of providing a central area 200 ft. by 100 ft. The height of the dome is 175 ft. The building is approached by a double porch about 10 ft. in depth. The whole of the interior was richly decorated with sculptured marble and mosaics. Even in the reign of Justinian, further reconstruction of the building became necessary, the dome having fallen in, through an earthquake; but this was the last important change in the structure within the Christian period of Constantinople. On the occupation of the city by the Turks 1453, St. Sophia was appropriated as a mosque. All its purely Chris-

## ST. THOMAS.

tings and internal structures were swept away. The Christian emblems were either mutilated or covered from view by a coating of plaster. The latter course was adopted throughout the building in the case of mosaic pictures containing representations of the human figure, which the canon proscribes as unlawful; thus the original mosaics of the Justinian era have in great part escaped destruction. About the middle of the 19th c. Sultan Abdul Medjid having ordered a complete restoration of the building, these mosaics were accidentally brought to light, and, with the consent of the sultan, artists were sent from Berlin, who, with the assistance of the architect employed by the Turkish govt., made accurate copies of all these interesting relics of antiquity, which have been published at the expense of the Prussian govt. by Salzenburg, the artist thus employed by the king. The interior of the building at present is very judiciously restored for Mohammedan worship, the Christian decorations being again carefully covered up, coated with plaster in imitation of mosaic-work. Like all mosques, St. S. is closed against Christians visitors except by special firman, which, however, is easily obtained. The weight of the dome has more than once threatened to crush in the substructure, rendering repairs necessary.—See Von Hammer's *Constantinopolis* (1822); Salzenburg's *Alt-christliche Baudenkmale Konstantinopels* (1854); Hagues, *Aya Sofia Constantinople* (London 1854); Amicis, *Constantinople* (transl. from 7th Italian edition); Besant, *Constantinople* (1879).

ST. THOMAS, *sānt tōm'as*: one of the Danish W. Indian islands, one of the group of the Virgin Islands (q.v.); 38 e. of Puerto Rico; 13 m. long; average breadth 3 m. sq. m. The surface is hilly, and the soil poor. Water exceedingly scarce: the chief town of the island, Charlotte Amalie (q.v.), depending for its supply on tanks of collected rain-water. The cultivation of vegetables, grass, and a little of cotton, employs the scanty rural population; but the products are small, and nothing is exported. The port, Charlotte Amalie or St. Thomas, is a station for steam-packets from Southampton to the W. Indies, and is an important entrepôt of W. Indian produce. In 1867, Oct., was visited by a fearful hurricane. In 1868, Jan., Denmark agreed to a treaty for the sale of St. T. and St. John to the United States; but as the U. S. legislature declined to ratify it, the treaty never took effect. Pop. (1890) 12,019.

ST. THOM'AS: island off the w. coast of Africa in the Gulf of Guinea, belonging to Portugal; 260 m. s.w. of Fernando Po; extreme length 32 m., breadth 21 m.; about 3 sq. m. Sugar was formerly grown extensively; coffee now the chief export. In 1876 slavery in St. T. was abolished by the Portuguese govt. The chief town is St. Thomas or Chaves, a bishop's see (pop. about 4,000): its people live in miserable wooden huts, and few can write or read.—Pop. of island (1878) 18,266, of whom 1,200 were white, the remainder mostly blacks. Pop. (1900) 37,776.

T. THOM'AS, CHRISTIANS OF: see CHRISTIANS OF THOMAS.

## ST. UBES—SAIS.

ST. UBES: see SETUBAL.

ST. VINCENT, *sānt vīn'sēnt*: one of the Brit. islands in the W. Indies, 100 m. w. of Barbadoes; one of the Windward Group; 18 m. in extreme length, 11 m. wide; 132 sq. m. The island is one of the most beautiful of its group. It is traversed from n. to s. by a chain of volcanic mountains, which rise in the volcano called the Souffriere 3,000 ft. Many valleys are fertile, and the shores are rich and productive. About two-fifths of the entire area are cultivated. Much rain falls, often to the serious injury of the crops and of the roads, but the climate is nevertheless healthful. The standard of morality, as well as of culture, is low. Value of total imports (1880) nearly \$750,000; exports about \$780,000; the principal export being sugar. In the same year, vessels having a total tonnage of 118,433 tons entered and cleared the ports. Chief port, and cap. of the island, Kingston (q.v.).—Pop. of island (1881) 40,548; of whom about 2,500 were white, 7,000 mulattoes, the remainder blacks; (1891) 41,054.

ST. VIN'CENT, CAPE (Portuguese *Cabo da São Vicente*): promontory forming the s.w. corner of Portugal and of Europe; off which several important naval battles have taken place. 1693, June 16, Admiral Rooke, with 20 English men-of-war, was here attacked by a vastly superior French fleet, and defeated with the loss of 12 men-of-war, and 80 merchantmen under his convoy. 1780, Jan. 16, Admiral Rodney here destroyed several Spanish ships; 1797, Feb. 14, the great battle of Cape St. V., between 15 British line-of-battle and 6 frigates, under Admiral Jervis (afterward Earl St. Vincent), and 27 Spanish line-of-battle and 12 frigates, resulted in the total defeat of the Spanish and capture of 6 of their largest ships (of which, however, only 4 were ultimately secured); the effect of this last victory was to frustrate the formidable Spanish-French scheme of invading England. The fourth naval fight off Cape St. V. was between the fleet of Queen Maria of Portugal, commanded by Sir Charles Napier (q.v.), and that of Dom Miguel, 1833, July 5, in which a portion of the latter was destroyed, and the rest captured.

ST. VIN'CENT, EARL OF: see JERVIS, JOHN.

ST. VI'TUS'S DANCE: see CHOREA.

SAIS, *sā'īs*: ancient Egyptian city, called in the hieroglyphics *Sa*, and existing at the time of the old monarchy; on the right bank of the Canopic branch of the Nile; 31° 4' n. lat. It is at present called Sa el Hagar, or Sa of the Stone, from some modern stone buildings in the neighborhood. There are no remains of temples or palaces on the site; all that remains being a wall of unburnt brick 70 ft. in thickness, perhaps the peribolos of the temple. Traces of the Temenos, 720 ft. long, remain, and of the citadel; but the temples and tombs which stood within the city walls have been completely stripped; many fine statues of basalt of the 26th or Saite dynasty, from this spot, being found in the different collections of Europe. S. gave its name to a nome, also to two Egyptian dynasties,

## SAITH—SAIVAS.

the 24th and 26th, founded by natives of the city. The goddesses principally worshipped there were Neith or Minerva, and Ceres or Isis. Neith was said to be mother of the sun, and is constantly called in the hieroglyphical legends the mistress of S. At S. there was a sepulchre of Osiris. The tombs of the kings, contrary to Egyptian and according to Greek custom, were within the walls. The tomb of Amasis consisted of a stone edifice with columns, and a chamber with doors. S. was important as a religious capital. Toward the decline of the monarchy, it rose to great splendor. The 26th dynasty transferred hither the cap. of the kingdom. Amasis transported a monolithic shrine of granite from Elephantine to S. with three years' labor of 2,000 men. Solon and Pythagoras visited S. and Plato was instructed in its colleges. There seems to have been a considerable Greek population in the city; but though S. continues to be mentioned after the 26th dynasty, its political importance then declined, and Memphis became the seat of govt. The intercourse between S. and Athens subsequently gave rise to the idea of Athens having been colonized from it. Lepsius, *Briefe*, p. 12; Wilkinson, *Modern Egypt*, I. 183; Herodot. II. 28, 59, 169; Strabo, XVII. 801; Champollion, *L'Egypte*, II. 219; *Lettres*, p. 50.

SAITH, or SEATH, or SETH, n. *sāth* [Icel. *seid*, the coal-fish]: a coarse sea-fish; the coal-fish; the young fry are called *silliks* or *sillocks*; in the second year they are called *cuths*.

SAIVAS, *sīvaz*: one of the three great divisions of Hindu sects: see INDIA. The word designates the votaries of S'iva, and comprises different special sects, which varied in number at different periods of mediæval Hinduism. The number of shrines dedicated to S'iva in his form as Linga (q.v.) make the Linga worship seem most prevalent of all; but these temples are seldom the resort of numerous votaries, and they have little veneration from the Hindus. In Upper India, the worship of S'iva has, indeed, never assumed a popular form. No poetic legends are recorded of this deity; the S. have no works in the common dialects; and their teachers of repute, like S'ankara (q.v.), are too philosophical to be popular. The worship of S'iva seems from a remote period more that of the learned and speculative classes, than of the masses of the people.

The principal present divisions of the S. are the following.—The *Dan'd'ins*, or staff-bearers, properly are representatives of the fourth order, or mendicant life, into which a Hindu is to enter after passing through the stages of a religious student, householder, and hermit. The *Dan'd'in* is distinguished by carrying a *dan'd'a*, or small staff, and a piece of cloth dyed with red ocre—in which the Brahmanical cord is supposed to be enshrined—attached to it. He shaves his hair and beard, wears only a cloth round his loins, and subsists on food obtained ready-dressed from the houses of the Brahmans once a day only, which he deposits in the small clay-pot that he always carries with him. The *Das'nāmi-Dan'd'ins*, included in

## SAJENE—SAJOU.

this class, admit none but Brahmans into their body. The philosophical tenets of this sect are mainly those of the *Vedānta* (q.v.), as taught by S'ankara and his disciples; but they generally superadd the practice of the *Yoga* (q.v.), and many have adopted the doctrines of the *Tantras* (q.v.). The *Yogins* are, properly speaking, followers of the *Yog* (q.v.) system; and the term implies a class of men who practice the most difficult austerities, in order to become absorbed into the universal spirit, and thus liberated from repeated births. The votaries of S'iva, so called, hold that by dint of these practices—such as continued suppression of respirations, sitting in 84 different attitudes, fixing the eyes on the top of the nose—they will be finally united with S'iva, whom they consider as the source and essence of all creation. They may be of any caste; they live as ascetics, single or in colleges; officiate as priests of S'iva in some places; mark the forehead with a transverse line of ashes, and smear the body with the same substance; they deal in fortune-telling, profess to cure diseases with drugs and spells; and some play and sing, and exhibit animal shows. The *Jangamas*, or *Lingavats*, are characterized by wearing the Linga emblem on some part of their dress or person.

The *Paramahansas* are ascetics who pretend to be sole occupied with the investigation of Brahman, and to be equally indifferent to pleasure or pain, insensible of heat or cold, and incapable of satiety or want. In proof of this they go naked in all weathers, never indicate any natural want, and receive from their attendants what is brought to them as their alms or food. The *Aghorins* pretend to the same apparent worldly indifference; but they seek occasions for its display, and demand alms as a reward. Their practices seem to betray that their worship was not originally inoffensive, but required human victims. They eat and drink whatever is given to them, even ordure and carrion; and to extort money from the credulous, they resort to the most disgusting devices. The *Urdhabāhus* are scaly mendicants; they extend one or both arms above their heads till they remain of themselves thus elevated. They also close the fist, and the nails being suffered to grow, completely perforate the hand. They usually assume the S'aiva marks, and twist their hair so as to project from the forehead, in imitation of the matted hair of S'iva. The *Ākāś'mukhins* hold up their faces to the sky till the muscles of the back become contracted and retain it in that position. The peculiarities of the other sects are equally trifling, and sometimes disgusting.—See Wilson, *Sketch of the Religious Sects of the Hindus* (1862); Monier Willian, *Religious Thought and Life in India* (1883); Barth, *Religions of India* (transl. 1882).

SAJENE, or SAGENE, n. *sa-jēn'* [Rus.]: Russian measure of length, equal to 1·167 English fathoms, or about 7 English feet.

SAJOU: see SAPAJOU.

## SAKA—SAKI.

SAKA, n. *sā'ka*: native name of the bastard purple heart-tree of Demarara, a species of *Copaifera pubiflora* and *C. bracteata*, which yield timber of great toughness, used in making furniture.

S'Â'KA: see S'Â'LIVÂHANA.

SAKALIN': see SAGHALIN.

SAKATAYANA, *sā-ka-tā'ya-na*: renowned Hindu grammaticalian, who preceded Pân'ini (q.v.) and Yâska (see IRUKTA), for he is quoted by both these authors. His grammatical work, however, seems to be lost; and a recent attempt to identify with it a grammar of a Sâkatâyana who is a later and probably modern writer, has signally failed.

SAKE, n. *sāk* [AS. *sacu*, contention, lawsuit: Low Ger. *ke*, suit at law; *saken*, to complain: Ger. *sache*, a complaint, an affair: Dut. *zaak*, cause, matter]: final cause; object; purpose of obtaining; regard to any person or thing.

SAKE, *sā'ki*: kind of beer made from rice; the commoncoholic liquor of Japan. It is clear, and has a peculiar taste, to Europeans generally unpleasant. The Japanese usually heat it before drinking, and pour it into flat cups of lacquered wood. It produces a quick and transient intoxication. See ARRACK.

SAKER, n. *sā'kēr* [F. *sacre*; It. *sagro*, a saker—from ab. *qaqr*]: a hawk; a species of falcon; formerly, a small mon. SA'KERET, n. -ēt, the male of the saker hawk.

SAKHRAT, n. *sak-rāt'* [Arab, a rock, a hewn stone]: Mohammedan myth., sacred stone of emerald color, which, by reflection, imparts the azure hue to the sky. He who possesses the smallest fragment of it, he acquires fabulous powers.

SAKI, *sā'ki* or *sāk'i* (*Pithecia*): genus of American monkeys, having the tail, which is not prehensile, covered with very long hair, whence they are often called Fox-



Saki Cuxio.  
(*Pithecia satanas*).

ed Monkeys. The head is round, and the muzzle short, ears not unlike those of the human race. The whole body is covered with long hair.

## SAKIEH—S'ÂKTAS.

SAKIEH, n. *sâk'i-éh*, or SAKIAH, or SAKEEYEH [Arab. *saka*, *sakka*, a water-carrier, a cupbearer]: a machine used in Egypt for raising water from the Nile for irrigation; a modification of the Persian wheel.

S'ÂKTAS, *sâk'taz*: one of the great divisions of Hindu sects (see INDIA). The term is from Skr. *s'aki*, 'power, energy,' but, in its special application, the energy of the deity, particularly of the gods of the Hindu triad, Brahma, Vishn'u, and S'iva. This energy, originally spoken of as the wish or will of the Supreme Being to create the universe, and afterward dilated upon in metaphorical and poetical speech, came to assume at the Pauranik period (see INDIA, *Hindu Religion*) the form of a separate deity, thought of as wife of the god to whom it belongs. Accordingly, Saraswati (q.v.) became the S'akti or wife of Brahma; Lakshmi (q.v.), the S'akti or wife of Vishn'u; and Devî, or Durgâ, or Umâ (q.v.), the S'akti or wife of S'iva. *S'âkta*, properly speaking, means, therefore, a worshipper of any of these female representations of the divine power; but, in its special and usual sense, it is applied to the worshipper of the female energy or wife of S'iva alone; and the S., properly so called, are, therefore, the votaries of Durgâ, or Devî, or Umâ (q.v.). Since S'iva (q.v.) is the type of destruction, his energy or wife becomes still more the type of all that is terrific; and, in consequence, her worship is based on the assumption that she can be propitiated only by practices which involve destruction of life, and in which she herself delights. Such a worship, leading to brutalization, and degenerating into grossest licentiousness—caused the S'âkta religion to become the worst of all forms which the outrageous aberrations of the Hindu mind assumed. It prevails especially in Bengal, among the lower classes. The works from which its tenets and rites are derived, are known as *Tantras* (q.v.); but as in some of these works the ritual enjoined does not comprehend all the impure practices recommended in others, the sect became divided into two leading branches, *Dakshin'âchârins* and *Vâmâchârins*—the last, the type of the S., carrying impurity to its extreme, in their ritual, especially the branch called Kaula or Kulina. Their object is, by reverencing Devî, who is one with S'iva, to obtain supernatural powers in this life, and to be identified after death with S'iva and his consort. The forms vary according to the immediate object of the worshipper. Prof. Wilson says: 'Where the object of the ceremony is to acquire an interview with, and control over, impure spirits, a dead body is necessary. The adept is also to be alone, at midnight, in a place where bodies are burned or buried, or criminals executed; seated on the corpse, he is to perform the usual offerings; and if he does so without fear, the Bhûtas, the Yoginis, and other male or female goblins, become his slaves. All the principal ceremonies comprehend the worship of S'akti, and require the presence of a female as the living representative and type of the goddess. This worship is mostly celebrated in a mixed society, the men of which represent Bhairava, and

## S'AKUNTALA—S'ĀKYAMUNI.

the women, Bhairavî. The S'akti is personated by a naked female, to whom meat and wine are offered, and then distributed among the assistants; and the worship is terminated with the most scandalous orgies among the votaries. The members of this sect are very numerous, especially among the Brahmanical caste; all classes are, however, admissible, and equal at the ceremonies of the sect. The particular insignia of these S'âktas are a semi-circular line or lines on the forehead, of red sanders or vermillion, or a red streak up the middle of the forehead, with a circular spot of red at the root of the nose. They use a rosary made of the seeds of the eleocarpus, or of coral beads.'—See H. H. Wilson, *A Sketch of the Religious Sects of the Hindus* (1862); Monier Williams, *Religious Thought and Life in India* (1883).

S'AKUNTALA, *sá-kón'ta-la*: one of the female characters in Hindu mythology. She is mentioned as a water-nymph in the *Yujurveda* (see VEDA), and is the subject of an episode of the *Mahâbhârata* (q.v.); but her name has become known in Europe through the drama of Kâlidâsa (q.v.), which, introduced by Sir William Jones 1789, became the starting-point of Sanskrit philology in Europe. The legend of S. in the *Mahâbhârata*, presents her as daughter of the saint Vis'wa'mitra (q.v.) and the Apsaras, or water-nymph, Menakâ. Abandoned by her parents, she was adopted by the saint Kan'wa, who brought her up in his hermitage as his daughter. King Dushyanta, hunting in the forest, came to the hermitage, and fell in love with S., persuading her to marry him according to the rite of the Gaudharva marriage, and promising her that the son she would bear him should be the heir to his throne, and that he would take her home as his queen to his royal city. In due time her son was born, and they remained at the hermitage until he was six years old; but as Dushyanta did not send any messenger for her, Kan'wa directed her to proceed with her boy to his palace. When she arrived there, she was repudiated by the king, who could not recognize her because of a curse which was upon her from a wrathful saint who, as a visitor at the hermitage, had deemed himself neglected by S. At last a heavenly voice assured the king of S.'s truth, and he recognized her as his queen, and her son as his heir. There are two versions of this drama; of the latter a good ed. was pub. at Calcutta 1864. The first Eng. transl. of the older version was by Sir William Jones (Cal. 1789); the second was by Prof. M. Williams (Hertford 1856); it renders the metrical part of the original with consummate taste. Among German, Italian, Danish, and other translations of this drama, the German by Ernst Meyer (Stutt. 1852) is worthy of especial notice.

S'ĀKYAMUNI, *sák'ya-mû'ni*, or the SAINT S'ĀK'YA: a name of the Buddha, founder of the Buddhist religion; see BUDDHISM.

## SAL—SALAAM.

SAL, *săl* [L. *sal*, salt]: a common prefix among the older chemists, denoting a compound having definite proportions of an acid with an alkali, an earth, or a metallic oxide. SAL-MIRABILE, -*mī-rāb'ī-lē* [L. wonderful salt]: Glauber's salt; sulphate of soda. SAL PRUNELLA, *prō-něl'lū*, a name given to nitre when fused and cast into cakes or balls. SAL VOLATILE, *vōl-ā'til-ē* [L. volatile salt]: the volatile salt; a solution of the carbonate of ammonia, and popularly pronounced *săl vōl'āt-il*: see SALTS, SMELLING.

SAL, or SAUL, n.: *sawł* [native name]: Indian timber-tree valuable for building and engineering purposes, and yielding a resin called dammar; the *Shoreā robusta*, ord. *Dipterocarpacēæ*.

SALA, *să'la*, GEORGE AUGUSTUS HENRY: English author: b. London 1828; son of an Italian father and a popular English singer. He was, from an early age, a contributor to magazines, and much of the time the travelling and war correspondent of journals, such as the *Daily Telegraph*. *Temple Bar Magazine* was founded and edited by him. On his second visit to the United States 1855, he lectured in many cities. The titles of his works indicate his travels: *Journey due North and Residence in Russia* (1859); *A Narrative of the Rhine* (1860); *Dutch Pictures* (1861); *America in the Midst of the War* (1864); *Trip to Barbary* (1865); *From Waterloo to the Peninsula* (1864); *Notes and Sketches of the Paris Exposition* (1868); *Rome and Venice* (1869); *Under the Sun* (1872), scenes in tropical countries; *America Revisited* (1882); *A Journey due South* (1885); etc. Besides these he published novels and imaginative sketches, such as, *How I Tamed Mrs. Cruiser* (1858); *The Dumb Poor Porter* (1862); *Strange Adventures of Captain Dangerous* (1863); *Quite Alone* (1864); *Wat Tyler, M.P.*, a burlesque (1869). He d. 1895, Dec. 8.

SALAAM, or SALAM, *sâ-lâm'* [*selám*, Arab. = Heb. *shalom*, peace]: general term of salutation among Mohammedans, who are very formal in their social manners, though their demeanor and conversation are quite unrestrained among both men and women. Several of their social formalities are founded on religious precepts; among these is the custom of greeting each other with the words (forbidden to be used with non-Mohammedans) 'Es-selámu aleikum' (Peace be with you), which is answered by: 'With you be peace, and the mercy of God, and His blessings!' Generally the rider salutes the person on foot, the passer-by those who sit down or stand still; the smaller party salutes the larger, the young the older, etc. Salutation is to be the first and the last thing on entering a house. The following is the rising scale of the different modes of obeisance with the Moslem: 1. Placing the right hand on the breast; 2. Touching the lips and the forehead or turban (or forehead and turban only) with the right hand; 3. The same, but slightly inclining the head during that action; 4. The same, but inclining the body also; 5. The same, previously touching the ground with the right hand; 6. Kissing the hand of the person to whom the obeis-

## SALACIOUS—SALADIN.

sance is paid; 7. Kissing his sleeve; 8. Kissing the skirt of his clothing; 9. Kissing his feet; 10. Kissing the ground —to be understood (against De Sacy) as merely touching the ground previous to touching the lips and forehead with the righthand. The first five modes are accompanied by the ‘Peace be with you,’ and the reply given above. The sixth mode is observed by servants or pupils to their master, wife to husband, and children to father, and sometimes mother, by the young to the aged, and the less learned to the learned and pious (Lane, *Notes to Arab. Nights*, etc.).

**SALACIOUS**, a. *sa-lā'shūs* [L. *salax* or *salācem*, lustful —from *salīrē*, to leap: It. *salace*, libidinous]: lustful; lecherous. **SALA'CIOUSLY**, ad. -*lī*. **SALA'CIOUSNESS**, n. -*nēs*, or **SALACITY**, n. *sa-lās'i-tū*, lust.

**SALAD**, n. *sāl'ad* [F. *salade*—from O. It. *salata*, a salad —from L. *sal*, salt: It. *insalata*; Ger. *salat*, a salad]: certain vegetables, usually seasoned, eaten raw as a relish with other food: named from the fact that salt is one of its chief ingredients. The principal salad herbs are lettuce, endive, chicory, celery, mustard, and cress: water-cress, onions, radishes, chervil and a few savory herbs used to give flavor. They are usually cut up, and mixed with salt, vinegar, oil, and other condiments, according to taste. Sugar often is added. Cresses, seed-leaves of mustard, etc., are often eaten without any addition. Salad has always been a favorite food with civilized nations. The Romans made it thus: Cultivated endive was cut small after careful washing and draining, then gravy and oil were poured over it; and finely minced onions were strewed over the whole; then a little vinegar and honey were added, and the salad served up. The great value of salads is in the fact that being uncooked, they contain more mineral matter, such as potash, soda, etc., than if boiled. Salads are prepared also with animal food, e.g., boiled lobsters, crabs, eggs, etc. **SAL'ADING**, n. vegetables for making a salad. **SALADE**, n. *sāl-ād'*, a pickle made of onions, cucumbers, and apples, with salt, Cayenne pepper, white wine, and the sauce ‘soy,’ and which may be used the same day as made. **SALAD-DAYS**, in *OE.*, days of inexperience. **SALAD-OIL**, olive-oil used for dressing salads, and for culinary purposes; in *familiar language*, a flogging.

**SALADIN**, *sāl'a-dīn*: name given by western writers to **SALAH-ED-DIN YUSSUF IBN AYUB**: sultan of Egypt and Syria, and founder of the Ayubite dynasty in those countries: 1137–93; b. at Tekreit, town on the Tigris, of which his father Ayub was gov. under the Seljuks: he reigned as sultan, about 1174–93. As the great Moslem hero of the third crusade, and the beau-ideal of Moslem chivalry, he is an interesting character. He belonged to the Kurdish tribe of Ravad. Following the example of his father and uncle, he entered the service of Noureddin (q.v.), prince of Syria, and accompanied his uncle in his various expeditions to Egypt in command of Noureddin’s army. S. was at this time much addicted to wine and gambling, and it was not till, at the head of a small detachment of the Syrian

## SALADINE-TENTH—SALADO.

army, he was beleaguered in Alexandria by the combined Christians of Palestine and Egyptians, that he showed any qualities of a great captain. On the death of his uncle, Shirkoh, S. became grand-vizier of the Fatimite caliph; but the Christians of Syria and Palestine, alarmed at the elevation of a Syrian emir to supreme power in Egypt, made a combined attack on the new vizier. S. foiled them at Damietta, and transferred the contest to Palestine, taking several fortresses, and defeating his assailants near Gaza; meanwhile also skilfully allaying his master Noureddin's jealousy of his talents and ambition. On Noureddin's death 1174, S. began a struggle with his successor, which ended in his establishing himself as the sultan of Egypt and Syria, a title confirmed to him by the caliph of Bagdad. The plundering by the Christians of a rich pilgrim caravan on its way to Mecca, an infringement of the treaty with S., brought down his vengeance on them; their army suffered a dreadful defeat at Tiberias (1187, July 4); the king of Jerusalem, the two grand-masters, and many other warriors of high rank were taken captive; Jerusalem was stormed (Oct. 2), and almost every other fortified place in Palestine was taken. The news of this great success of the Mohammedans aroused the furious zeal of western Europe; and a powerful army of crusaders, headed by the kings of France and England, speedily appeared on the scene of strife. They captured Acre 1191; and Richard Cœur-de-Lion, at the head of that portion of the crusading army which adhered to him, continued the war with success, twice defeated S., took Cæsarea and Jaffa, and finally obtained a treaty for three years 1192, Aug., by which the coast from Jaffa to Tyre was yielded to the Christians. In the following year, S. died at Damascus of a disease under which he had long suffered. S. was not a mere soldier; his wise administration left traces for centuries. In him the warrior instinct of the Kurd was united to a high intelligence; and even his opponents attribute to him many of the noble qualities of mediæval chivalry, invincible courage, inviolable fidelity to treaties, greatness of soul, piety, justice, and moderation.

The Ayubite dynasty, of which he was founder, ruled Syria till 1259, when it was dispossessed by the Perso-Mongols, and over Egypt till the rise of the first Mameluke kingdom under Ibeg 1250.

SALADINE-TENTH, n. *sāl'a-dīn*.: in law, tax imposed on England and France, 1188, by Pope Innocent III., to obtain money for the crusade to be led by Richard I. of England and Philip Augustus of France against Saladin, Sultan of Egypt. This tax became the ground for taxing ecclesiastical benefices for the pope. The example was ultimately imitated by various sovereigns.

SALADO, *sá-lá'dō*, RIVER: South American river, rising in one of the spurs of the Andes, and flowing s.s.e. in the Argentine Republic about 600 m. to the Parana', which it enters near Santa Fé. It is navigable for small vessels for a large part of its course.

# SALÆRATUS—SALAMANCA.

SALÆRATUS: see SALERATUS.

SALAL-BERRY, n. *sa-läl'bë'rë*: the berry of *Gaultheria Shallon*. It is about the size of a common grape, and grows in the valley of the Columbia river, Oregon.

SALAM: see SALAAM.

SALAMANCA, *sä-lä-män'kä*: one of the three modern provinces of Spain, into which the anc. kingdom of Leon (q.v.) was divided; about 4,940 sq. m. Pop. (1887) 314,472.

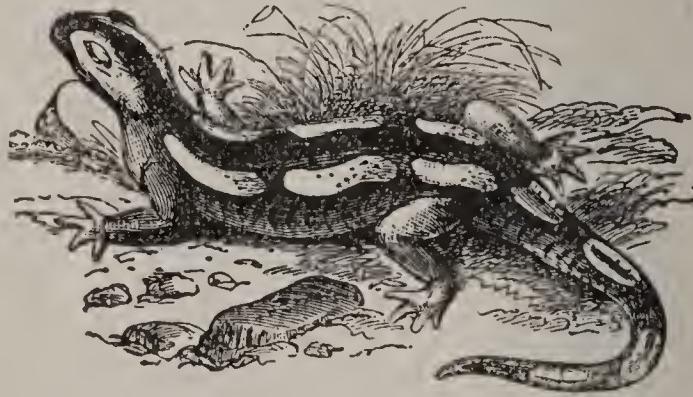
SALAMAN'CA: famous town of Spain, cap. of the modern province of S.; on three rocky hills on the right bank of the Tormes, 50 m. e.n.e. of Ciudad Rodrigo. Prior to its almost total destruction by the French 1812, it was renowned for the number of its splendid edifices and institutions, and even yet it is a rich mine for the architect, abounding in magnificent specimens of simple and florid Gothic, as well as of the richest *cinqüenaria*. It is surrounded by a wall, pierced with nine gates, and a part of which is very old. The narrow, crooked, dark, and steep streets, containing many old and stately structures, residences of the old nobility, give the town an antique and venerable look. Besides the old cathedral, a simple and massive edifice, there are five other churches of the 12th c. The new cathedral, begun 1513, is a magnificent structure in florid Gothic, in whose adornment painting, gilding, and sculpture have been largely and successfully used. At the close of the 18th c., S. contained 27 parish churches, 39 convents, 25 colleges. Of the colleges, 20 were destroyed by the French while the town was in their possession, as well as about 20 of the convents, for the purpose of obtaining materials for the erection of fortifications, and for firewood. The Univ. of S., with which the Univ. of Palencia (q.v.) was incorporated 1243, was founded 1200: it consisted of a number of colleges, divided into *Mayores* and *Menores*, or larger and smaller colleges. Of the former, there were only six in Spain, and four of these were at S.: the other colleges were 21 in number. In the 14th c., the univ. was attended by 17,000 students; the attendance is now only 200. The library, according to the most recent statements, contains 30,000 vols. and 1,500 MSS. One of the most highly-prized works in the Rom. Cath. divinity is the great collection of Controversial and Moral Theology, by the members of the college of Carmelite friars in S., known by the name of *Salmanticenses* or the *Salamanca Theologians*. The *Plaza Mayor* is the largest square in Spain, and one of the finest in Europe; and when fitted up as a bull arena, as in 1863, it accommodates 16,000 to 20,000 persons. The bridge across the Tormes rests on 27 arches, and is of Roman foundation. Manufactures of cloth, leather, and earthenware are carried on. Pop. (1878) 18,007; (1887) 22,199.

S., the anc. *Salmantica*, was a Roman *municipium*. In the vicinity was won one of the most famous victories of the Peninsular War, by the British under Wellington against the French under Marmont, 1812, July 22.

## SALAMANDER.

SALAMANDER, n. *săl'ă-man'dér* [F. *salamandre*—from L. or Gr. *salamandra*]: fabulous animal in mediæval superstition, said to be able to live in fire; it was supposed to have the shape of a man: in zool., an amphibian allied to the newt (see below). S. denotes also a large iron poker; an iron plate employed for cooking purposes. SAL'AMAN'DRINE, a. *-drin*, pertaining to a salamander; enduring fire. SALAMANDER'S HAIR, amianthus and asbestos.

SALAMAN'DER (*Salamandra*): genus of Batrachians of family *Salamandridæ*, to which Newts (q.v.) also belong. The name is, indeed, sometimes extended to the whole family; newts being called *Aquatic Salamanders*, and the name *Terrestrial S.* being given to this genus, the species of which inhabit water in only their tadpole state, and return to it only to deposit their eggs, generally living in moist places, as under stones, roots of trees, etc. The general form is very similar to that of newts, but the tail is round, not flat as in newts. Several species are found in Europe. The SPOTTED S. (*S. maculosa*), six or eight inches long, black, with bright yellow stripes on its sides, and



Spotted Salamander (*S. maculosa*).

livid blue beneath, is widely spread throughout Europe. The BLACK S. (*S. atra*) is much smaller, black, the body and tail ringed, the tail almost as if formed of beads. It is abundant in the Alps and mountains of s. Germany. Other species are found in Spain, Italy, etc.; Asia and N. America also have numerous species. The most remarkable N. Amer. species is the *Ambystoma mavortium*, occurring 4,000—9,000 ft. above the sea from Montana to Mexico. Its larval form, which in some localities or circumstances it retains through life, is larger and different both in appearance and anatomy, and was described as a distinct species, *Siredon lichenoides*. The Tiger S. of the prairies is about 10 in. long and spotted; it is often found in cellars and fields, and is called mud-puppy, a name given also to the large *Menopoma* or 'hellbender,' and to the *Menobranchus* of the lakes. The largest known is the Japanese S., which grows to more than 3 ft. in length. Our common small land S. is *Plethodon erythronotum*, red-spotted and sometimes wholly bright red. The name S. extends to all the tailed batrachians of the order *Urodelæ*, though usually restricted to those that have no persistent gills, but breathe by lungs. Salamanders feed on worms,

## SALAMIS.

slugs, snails, and insects. They are inert and sluggish creatures, and timid to the utmost extent that their stupidity permits. The brain is very small. They are perfectly harmless, though exuding, when alarmed, from pores on the back and sides, a milky humor, which is injurious to very small animals. But they have long had, and still retain, a popular reputation of extreme venomousness, and are therefore objects of utmost dread to the vulgar in almost all countries which they inhabit. Strange fables have been current concerning them from remote ages, particularly as to their ability not only to endure fire without burning, but to extinguish fire.

SALAMIS, *sál'a mís* (modern name, *Koluri*); in ancient times called also *Pityoussa* (Island of Pines): irregularly-shaped, mountainous island of Greece, off the coast of Attica, and forming with it the Bay of Eleusis. Its area is about 30 sq. m., and it has a modern pop. of about 4,000, the chief town being Koluri, on the w. coast. It had anciently two principal towns, Old and New S., the former on the s. and the latter on the n.e. coast. S. is remembered chiefly for the great naval battle between the Greeks and Persians (B.C. 480) a few days after the battle of Thermopylæ, in the narrow strait between the e. coast of S. and the w. coast of Attica. The Grecian fleet, of about 360 vessels, was drawn up at the entrance of the bay forming the harbor of New S., Themistocles being leader of the Athenian contingent, and Adimantus of the Corinthian, while the whole was under the command of the Spartan Eurybiades. Great dissensions prevailed among the Grecian leaders, which would probably have led to a general break-up, had not Themistocles by a stratagem induced Xerxes, King of the Persians, to bring up his fleet, and give immediate battle to the Greeks. Xerxes drew up his ships, numbering at least 1,000, during the night previous to the battle, opposite the Grecian fleet, along the coast of Attica, almost completely blocking up both entrances to the straits; and confident of victory if he himself superintended operations, he took his seat on a throne erected on a lofty height on the Attic coast, almost opposite New S. Both Greeks and Persians fought with great bravery, but the latter were entirely defeated, owing, perhaps, chiefly to their immense, unwieldy fleet being compressed into so small a space, which rendered it almost unworkable, and completely at the mercy of their opponents. The only name mentioned on the Persian side with distinction is that of Artemisia, Queen of Halicarnassus, who is said to have fought with desperate bravery. The loss of the Greeks is said to have been 40 ships, and that of the Persians 200 ships, exclusive of those captured.

## SAL-AMMONIAC—SALARY.

SAL-AMMONIAC, n. *săl'äm-mō'nî-äk* [see SAL, and AMMONIA], (known in chemistry as HYDROCHLORATE OF AMMONIA): important article in the Materia Medica; obtained on a large scale by decomposing with common salt (chloride of sodium) the sulphate of ammonia formed in manufacture of coal gas, or the carbonate of ammonia obtained by distillation of bones. It is sold in large, crystalline, grayish-white, semi-transparent cakes, convex on one side, concave on the other. It is inodorous, but has an acrid, bitter, and nauseous taste. Its specific gravity is 1·45; it volatilizes without decomposition when heated, and is freely soluble in water. Its aqueous solution, when heated with caustic potash, evolves gaseous ammonia; and when treated with nitrate of silver, yields a white, curdy precipitate of chloride of silver. This salt is largely given in France and Germany in cases of pneumonia and of inflammation of the serous membranes, in mucous diarrhea, in chronic rheumatism and gout, and in passive dropstics. Neligan recommends it in cases of low fever, in subacute laryngitis, in chronic affections of the liver, and in facial neuralgia. It may be given in doses varying from 10 to 30 grains, dissolved in some aromatic water. As a local external application, it is of great value in promoting absorption of effused blood; and there is probably no remedy so effectual for the disfigurement popularly known as a *black eye*, as a moderately strong solution of this salt, kept constantly applied as a lotion. If it is desired to apply cold to any part of the body, an excellent Refrigerant (q.v.) may be obtained by dissolving five parts of this salt and five parts of nitre in sixteen parts of water.

S.-A. is used for various purposes in the arts; e.g., in soldering, and in tinning of copper and iron to prevent oxidation of the surface to be tinned; also in dyeing.

As a mineral, it occurs as an efflorescence on the surface of rocks, or as a sublimate in fissures, crystallized in small crystals, or forming crusts, stalactites, etc. It is found in volcanic regions, but is produced during the time of the quiescence of active volcanoes, rather than during their eruptions. It occurs in Britain, near burning beds of coal. It is found in Persia, Tartary, Siberia, and many other countries, where there are no active volcanoes. Formerly, all Europe was supplied with it from the neighborhood of the temple of Jupiter Ammon in Egypt, whence its name.

SALAMSTEIN, n. *sa-läm'stīn* [Ger. *stein*, a stone], also SAL'AM-STONE, n. -*stōn*: a name applied to the blue or oriental sapphire from Ceylon.

SALARY, n. *săl'a-ri* [F. *salaire*; It. *salario*, salary—from L. *salarium*, salt-money given to Roman soldiers and officials—from *sal*, salt]: a fixed sum paid to a person for his services, yearly, half-yearly, or quarterly: V. to fix or pay a salary to. SAL'ARIED, a. -*rīd*, having a salary; receiving a salary.—SYN. of ‘salary, n.’: pay; wages; stipend; allowance; hire; recompence.

## SALDANHA—SALE.

SALDAN'HA BAY: see CAPE OF GOOD HOPE.

SALE, n. *säl* [Icel. *selia*; AS. *sellan*, to transfer, to sell; Icel. *sala*, delivery, bargain]: the act of selling; the exchange of any sort of goods for money or equivalent value; an auction (see SALE OF GOODS: SALE OF LAND). SALABLE, a. *säl'a-bl*, that may be sold; that finds a ready market. SAL'ABLY, ad. -*bli*. SAL'ABLENESS, n. -*bl-nës*, the state of being saleable. SALEWORK, work made only for sale; work not executed with the usual care. BILL OF SALE: see under BILL 2. ON SALE, or FOR SALE, that may be bought; offered to purchasers. SALESMAN, n. *sälz'man*, one who attends to the sale of goods; a dealer in the way of selling; one who sells beasts at market; a commercial traveller. SALE'ROOM, n. -*róm*, the room or department where sales are made; an auction-mart.

SALE, *säl*, GEORGE: oriental scholar: b. prob. in Kent, England, near the end of the 17th c.; died 1736, less than 40 years of age. Almost nothing is known of his private life. He had his education at the King's College, Canterbury. Brought up to the law, he is believed to have practiced it almost to the end of his life. He assisted in the *Universal History*, and was one of the authors of the *General Dictionary*; but he is best known by his unrivalled translation of the Koran, ‘with explanatory notes taken from the most approved commentators, to which is prefixed a preliminary discourse’ (1734). This ‘preliminary discourse’ is of great value; it treats, among other things, ‘of the Arabs before Mohammed—their history, religion, learning, and customs; of the state of Christianity, particularly of the Eastern Churches, and of Judaism, at the time of Mohammed’s appearance; and of the methods and circumstances of the establishment of his religion, of the doctrines, precepts, and peculiarities of the Koran, and of the principal Mohammedian sects.’ This translation formed a new epoch in the study of Islam and its literature; and it still bears the palm: see KORAN.

SALE OF GOODS: contract by which the seller, in consideration of a price, transfers the property in the goods to the purchaser. Where the consideration is not money but goods, the contract is called exchange or barter. When the bargain is struck, and the sale relates to specific goods, the property vests at once in the purchaser, so that in event of any damage or destruction of the goods, the loss is the purchaser’s and not the seller’s, even though the goods have not been delivered, and whether the price has been paid or not. The contract may be made either by word of mouth or by writing; but when the price exceeds a certain sum, in some states \$50, in others \$40, or \$30, the Statute of Frauds enacts that the contract shall not be binding unless it is in writing. If, however, the buyer shall have accepted part of the goods sold, and actually received the same, or if he shall have given something in earnest to bind the bargain, or in part payment, then a verbal contract will be binding though the price exceeds the statutory sum. When a contract of sale is made, the duty of the

## SALE—SALEM.

seller is to deliver the goods as soon as the buyer has performed all the conditions agreed upon. If no time was specified for delivery, then he must deliver the goods in a reasonable time. In general, if nothing is agreed to the contrary, the seller need not deliver till the price is paid, but he must do so if the bargain was, that delivery was to take place before payment, in other words, if the sale was on credit. On the other hand, it is the duty of the buyer to accept the goods and pay for them. If either party fail at any stage in his performance of the duties arising out of the contract, the other may bring an action which varies according to the nature of the breach of contract. One valuable right of the seller, when he has sent his goods to the buyer, and they are not delivered, is to stop them *in transitu*. Stoppage *in Transitu* (q.v.) is resorted to chiefly when the seller hears of the bankruptcy of the buyer after he has sent him goods. For the law regulating the S. of G. by agents, see AGENT: BROKER: FACTOR.

**SALE OF LAND:** contract for transfer of title to land; differing in several respects from sale of goods. An agreement for sale of land must, as a rule, be in writing, otherwise it cannot be enforced. When once a contract for sale of land has been entered into, a court of equity will, contrary to the general rule which prevails when a contract is broken, enforce specific performance of the contract; i.e., will compel the seller or buyer to carry out his contract, and transfer or accept conveyance of the land. The seller of land does not, in general, guarantee the title—should such guarantee be required, a warranty to that effect is inserted in the contract. Commonly the purchaser has an investigation made as to the condition of the title. If the title is proved defective, the purchaser is not held by the contract, and can recover from the seller damages as well as the cost of search: see DEED.

**SA'LE, or SLA:** see SALLEE.

**SA'LEM:** city, one of the caps. of Essex co., Mass.; on the Atlantic Ocean, and on the Boston and Maine railroad; 16 m. n.e. of Boston; 7 sq. m. It is on a peninsula formed by two arms of the sea known as North and South rivers, has a large and well protected harbor, and is the trading centre for 70,000 people. By the Boston and Maine railroad system it has frequent and rapid communication with Boston, Lowell, Lawrence, Bar Harbor, and all White Mountain, n., and e. points. The business centre is paved, and the streets generally are macadamized. The water supply is from Wenham Lake through two main pipes; gas and electric lights are used; and there are 40 m. of street railroad (electric and horse car), connecting all surrounding towns. The public buildings include the city-hall; old U. S. custom-house (see *Introduction to Hawthorne's Scarlet Letter*); new custom-house; old and new court-houses; E. India Marine Hall, containing the unique museum of the E. India Marine Soc. (organized 1799) and the Peabody Acad. of Sciences, Plummer Hall, containing the Salem Athenæum (organized 1810) and the Essex In-

## SALEM.

stitute (1848), both with large and valuable libraries; House of Correction, Almshouse; Plummer Farm School; Children's Home; Old Men's Home; Home for Aged Women; Salem Hospital: and one of the state normal schools. In 1901 there were 6,092 children of school age enrolled in the public schools, of whom 4,987 were in aver. daily attendance; 18 public school buildings; and over 100 teachers. There were 25 churches: Unit. 4; R. Cath. 3; Bapt. 3; 'Orthodox' Congl. 3; Meth Episc. 2; Prot. Episc. 2; and Advent, Deaf Mute, Friends, New Jerusalem, Universalist, Bethel Seamen's, Bethel Marine and Swedish, 1 each. The public debt (1891) was \$977,931; assessed real and personal valuations \$26,199,000; receipts \$917,000; expenditures \$872,000; tax rate \$1.70 on \$100. There were 4 nat. banks (cap. \$2,015,000), 2 sav. banks; Harmony Grove, Greenlawn and Rom. Cath. cemeteries; 2 daily, 2 semi-weekly, 2 weekly, 1 bi-weekly, 2 monthly, 1 quarterly periodicals. S. is one of the most interesting places in New England, and, after Plymouth, the oldest settlement in Mass. It was settled 1628; was the scene (with the present Danvers), of the famous witchcraft delusion 1692; was the seat of the assembly which resolved that the people of Mass. were a sovereign political power 1774; and was the scene (at North Bridge) of the successful interruption of the British expedition from Boston in search of cannon 1775. It became a city 1836.

S. has always had literary and social eminence, and has been the birth-place of many noted men. For many years it was one of the most important commercial ports in the country, and had a larger E. India trade than all others combined. But its harbor was found too shallow for the increasing size of ships, and now its foreign commerce is very limited—having been long ago absorbed by Boston, and later by New York; but it has considerable coasting trade. The principal industries are manufactures of cotton and leather. The city is full of attractions for the antiquarian and the historical student. Pop. (1870) 24,117; (1880) 27,563; (1890) 30,800; (1900) 35,966.

SA'LEM: city, cap. of Salem co., N. J.; on Salem river, and on the West Jersey railroad;  $3\frac{1}{2}$  m. e. of the Delaware river, 34 m. s.w. of Philadelphia. It is one of the oldest cities in the state, having been settled 1673, and for many years has been the shipping point for a large and rich agricultural region. It has a daily steamboat line to Philadelphia; manufactures flour, iron foundry products, glassware, oil-cloth, hollow-ware, and canned fruit; and contains court-house, city-hall, public library, collegiate institute, opera-house, 11 churches, high school, 4 graded schools, medical institute, 2 national banks (cap. \$250,000), and 3 weekly periodicals. Pop. (1870) 4,555; (1880) 5,056; (1890) 5,512; (1900) 5,811.

## SALEM—SALEP.

SALEM, *sā'lēm*: city, cap. of Marion co. and of Or.; on the e. bank of Willamette river and on the Oregonian and the Oregon and California railroads; 52 m. s. of Portland, 700 m. n. of San Francisco. The river is navigable the greater part of the year, and furnishes excellent water-power. The city contains a nat. bank (cap. \$75,000), 2 private banks, 1 incorporated bank, 18 churches, 5 public school buildings, Willamette Univ. (Meth. Episc., founded 1853, which in 1897 had 52 instructors, and 747 students, grounds and buildings valued at \$75,000, and productive funds \$50,000), Acad. of the Sacred Heart, Women's College, state Capitol, co. court-house, Insane Asylum, Institution for the Deaf and Dumb, U. S. Indian Training School, Institution for the Blind, state penitentiary, 2 hotels, opera-house, grounds and buildings of the State Agricultural Soc., gas and electric-light plants. 3 flour and grist mills, and 5 newspapers. Vicinity produces wheat, oats, barley, hay, rye, corn, potatoes, vegetables and fruit; also salmon, trout, deer, bear, elk, quail, grouse, pheasant, geese and duck. City ships a large quantity flour. Pop. (1880) 2,538; (1900) 4,258.

SALEM: town, cap. of Roanoke co., Va.; on Roanoke river, and on the Norfolk and Western railroad; 60 m. w. of Lynchburg, 180 m. w. of Richmond. It is in a noted tobacco and agricultural region; has several excellent chalybeate and sulphur springs, hotels for summer boarders, large town-hall, 8 churches, graded public schools, 2 banks (1 national, 1 state), and two newspapers; and contains manufacturies of tobacco, leather, carriages and wagons, and furniture. S. is the seat of Roanoke College (Luth.), founded 1853, which had (1887-8) 9 instructors, 126 students, 20 scholarships, 4 years' course, 16,000 vols. in the library, \$75,000 in grounds and buildings, \$25,000 in productive funds, \$6,500 income (excepting from board and lodging), and \$25,000 in benefactions. Julius D. Dreher, PH.D., was president. During the school year 1889-90 the benefactions were \$43,000.—Pop. (1870) 1,355; (1880) 1,759; (1890) 3,279; (1900) 3,412.

SALEM *sā'lēm*: town in s. India, cap. of the collectorate of S., 193 m. w. of Madras. The collectorate is the chief seat of the curious and ancient Indian *steel manufacture*. The town is in an elevated valley, 1,070 ft. above sea-level, bounded n. and s. with hills. It is well built. Cotton and silk are grown in the highly cultivated country around. Pop. (1891) 67,710; (1901) 70,621.

SALEMI, *sā-lā'mē*: town of Sicily, province of Trapani, 39 m. s.w. from Palermo. Pop. about 12,000.

SALEP, n. *sā'lēp* [Turk. *salleb*]: drug, used largely in the East as a nervine and fattener, and in parts of Europe as a demulcent drink—advantageous also in inflammatory conditions of the mucous membrane, as in bronchitis, diarrhea, and some urinary disorders. It consists of the tubers of many species of *Orchis* and other *Orchideæ*, dried for food. Of the two tubers usually found at the roots of these plants, only one is gathered for S., the younger and

## SALERATUS—SALERNO.

more solid of the two. The tubers are gathered when the stalk is about to fall. They vary from the size of a cherry-stone to that of an olive. They are cleaned, dipped for a few minutes in boiling water, and dried as quickly as possible, by which process they are rendered hard and horny, and may be reduced to granular powder. The greater part of the S. of commerce is brought from the East, and much of it from Persia; it is supposed to be obtained from species of *Eulophia*; but most of the European species of *Orchis* are used for it. Before coffee became common S. was an article of considerable importance; and large quantities were imported into western countries from Turkey, Persia, and India. In France it is still in demand. For use it is ground into powder, and mixed with boiling water, sugar and milk being added according to taste. As a diet drink, it was considered very nutritious and wholesome; and half a century ago it was sold, ready prepared, to the working-classes of London, early in the morning, from numerous street stalls. Its principal constituents are *bassorine*, starch, and phosphate of lime.

SALERATUS, or SALÆRATUS, n. *säl'ē-rā'tūs* [L. *sal*, salt, and Eng. *aerated*]: prepared mixture of bicarbonate of soda and salt, a sesquicarbonate of potash—used by bakers and housekeepers with cream of tartar and buttermilk for baking bread: see POTASSIUM: SODIUM.

SALERNO, *sä-lér'nō* (anc. *Salernum*): city of s. Italy, chief town of the province of S., on the Gulf of S., 32 m. e.s.e. of Naples. A Gothic wall, of huge stones without mortar, encircles it; the streets are paved with lava, and, except the two principal ones, are narrow, irregular, and dirty. It has a strong castle, and a very small harbor. The old and beautiful Gothic cathedral was erected by the Normans, and has around it a portico of porphyry and granite pillars brought from Pæstum by Robert Guiscard. It has many famous sepulchres, among others, those of Robert and Guillaume Guiscard, of Margaret of Anjou, and of Gregory VII. S. was famous in the middle ages for its school of medicine (the *Schola Salernitana*), founded by Robert Guiscard about the end of the 11th c., long the first med. school in Europe. The univ. has fallen into decay. In its neighborhood, which produces excellent wine, are the ruins of Pæstum, destroyed by the Saracens, 9th c. Of anc. Salernum or Salurnum, there remain the Temple of Neptune, that of Ceres, and the ruins of an amphitheatre and of a theatre.—S. was founded by the Greeks; it became important under the Roman empire, then passed into possession of the Goths, and of the Lombards. Robert Guiscard made himself master of it 1076. Charles V. united it to the kingdom of Naples. Pop. (1901) 42,727.

SALERNO, GULF OF (anc. *Sinus Pæstanus*, on whose shores, in early times, the Greek city of Pæstum [q.v.] stood): nearly semicircular indentation on the w. shores of s. Italy, s.e. of the Bay of Naples, from which it is separated by the promontory ending in Point Campanella. The Gulf is 36 m. wide at its entrance, and sweeps inland for 24 m. On its shores are the towns Amalfi and Salerno.

## SALES—SALICIN.

SALES, FRANCIS DE, Saint: see FRANCIS DE SALES, Saint.  
SALESMAN: see under SALE.

SALEYER ISLANDS, *sā-lī'ēr*, THE: in the Indian Ocean s. of Celebes. More than 30 of the group are small, hilly, densely wooded, and, with few exceptions, uninhabited. Great Saleyer,  $5^{\circ} 44'$ — $6^{\circ} 26'$  s. lat., and  $120^{\circ} 23'$ — $120^{\circ} 37'$  e. long, is more than 40 m. long, and 7 wide; 336 sq. m. The mountains on the e. coast rise abruptly out of the sea, and along the w. is a slip of level land planted with cocoa-nut trees. Pop. 60,000. Great Saleyer and the smaller islands produce fine timber, including ebony and teak. Indigo, coffee, and mustard are grown; but millet, maize, earth-fruits, and cotton are the staple cultures, the grounds being carefully fenced. Agriculture is the chief employment, and fishing, making salt, etc., are carried on. The exports are cocoa-nuts, cocoa-nut oil, cotton, and cotton fabrics. Imports—rice, gambir, tobacco, yarns, iron and copper wares. Since the Netherlands' govt. made Macassar a free port, sea-going ships are not permitted to anchor at Saleyer; and the trade is carried on by small vessels, which sail between that island, the Bight of Boni, Sumbawa, Bali, Borneo, Java, Macassar, and Singapore. The sea is rich in various kinds of fish—a long and thin species, the Saleyer, giving a name to the island.

The S. I. are governed by 14 rajahs, superintended by a Netherlands' agent. The natives are Mohammedans, each large village having a mosque and priest. The high-priest resides near the political agent, has a seat in the council, and is consulted on religious questions. Some of the rajahs and notables have tables and chairs, tea and dinner services, silver spoons and forks, mattresses, cushions, and even satin bed-curtains.

SALFORD, *sāl'fērd*: municipal and parliamentary borough, Lancashire, England: considered as virtually a portion of the city of Manchester (q.v.).

SALIAN, a. *sā'lī-an*: of or pertaining to the Salii or priests of Mars in anc. Rome.

SALIANS, or SALIC FRANKS: see SALIC LAW.

SALIC, a. *sāl'īk*, or SALIQUE, n. *sāl'īk* or *sāl'ēk* [F. *salique*, salic law—derived from the laws of the anc. Salian Franks]: applied to the law of France: see SALIC LAW. SALIAN, a. *sā'lī-an*, of or pertaining to a tribe of Franks who settled on the Sala, now the Yssel, from the 3d to the middle of the 4th century.

SALICACEÆ: see WILLOW.

SALICACEOUS, a. *sāl'ī-kā'shūs* [mod. L. *salicaceæ*]: belonging or relating to the willow or to the natural order *Salicaceæ*. SALICETUM, n. *sāl'ī-sē'tūm* [L. *salix*, *salicis*, a willow]: willow plantation.

SALICIN, n. *sāl'ī-sīn* [L. *salix* or *salīcem*, a willow]: bitter crystallizable substance extracted from the bark of the willow or the poplar. SALIGENIN, n. *sāl'ījēn-īn*, a derivation of salicin. SALICYLIC, a. *sāl'ī-sīl'īk* [from L. *salix*, willow]: derived from the willow. The word is used only in the name of Salicylic Acid (q.v.). SALICYLATES, n. salts of salicylic acid.—*Salicin* ( $C_{26}H_{18}O_{14}$ ) is a member of the

## SALICIONAL.

group of organic compounds to which the term *glycosides* has been applied by chemists—a group characterized by the fact that each of its members, when exposed to certain chemical agencies, breaks up (usually after absorption of water) into glycose (or grape-sugar) and other compounds. It occurs in the bark of the various species of willow and poplar, in the blossoms of several species of *spiraæa*, and probably in the animal secretion known as *castoreum*. It may be obtained in small, colorless, glistening prisms of intensely bitter taste, which are readily soluble in hot water and in alcohol, and moderately soluble in cold water, and are insoluble in ether and oil of turpentine; and its solutions exert a left-handed rotatory action on a ray of polarized light. When heated to 248°, S. fuses; and at a higher temperature, it is entirely decomposed. It dissolves in strong sulphuric acid, the solution being of purple or blood color. S. is manufactured to a considerable extent as a cheap substitute for quinia. There are various modes of extracting it from the macerated bark; and 1 lb. of the bark of *Salix pentandra* yields, according to Erdmann, 5 drachms of S. If it is not so certain in its action as a febrifuge as quinia, there can be no doubt that it is an excellent tonic; and it is less likely than quinia to irritate the stomach. Dr. Neligan reports that he has used it extensively as a tonic in the debility following acute diseases, particularly in cases accompanied by irritability of the digestive organs, and considers its powers fully equal to those of sulphate of quinia. As a tonic, two grains may be given three or four times a day; as a febrifuge, one to two scruples in divided doses, during the intermission.—See SALICYLIC ACID.

**SALICIONAL**, n. *sa-lish'on-al* [L. *salix*, a willow]: organ stop of soft and delicate quality, supposed to be similar to the *salicis fistula*, or withy-pipe. It is generally placed in the choir organ, but sometimes in the swell, in either case replacing the dulciana, which it greatly resembles.

## SALIC LAW—SALICYLIC ACID.

SAL'IC LAW. The code known as the *Salic Law* is a collection of the poplar laws of the Salic or Salian Franks (see FRANKS) committed to writing in barbarous Latin in the 5th c., while the people were yet heathen. There exist several texts of this code, and considerable obscurity rests over its history. It relates principally to the compensation and punishment for crimes; and there is a chapter containing provisions regarding the succession to what are called *Salic Lands*, which seem to have been inserted at a later date. It is difficult to determine precisely what these lands were. The *terra salica* was probably so called from its being more especially attached to the *sal* or hall of the lord or proprietor (some derive *salic* as applied to the people from the same word); it thus came to designate inherited land as opposed to property acquired otherwise. Although the Frankish law did not in general exclude females, the succession to these salic lands, whatever they were, was confined to males, probably from the importance of securing the military service of the chief proprietors. It was but a doubtful analogy that led the rule of succession to salic lands to be extended to the succession to the French crown, and it seems to have been only in the 14th c., that the exclusion of females from the throne became an established principle. The accession of Philip the Long was probably the first occasion on which it received public sanction, and the fact that Edward III. rested his claim on female succession, doubtless lead to that instance being regarded as an unquestionable precedent for all future time.—See Hallam's *Europe in the Middle Ages*; Guizot, *Essais*; and the *Lex Salica with the Glosses*, by Hessel (1880).

SALICORNIA, n. *săl'i-kor'nî-ă* [L. *sal*, salt, *salis*, of salt; *cor'nua*, horns]: a Linnæan genus of saline plants, ord. *Chen'opodiâ'cœæ*, natives of the sea-shore, whose species yield soda in quantities.

SALICYLIC ACID, *săl-i-sil'ik ăs'īd* ( $C_6H_5O_3$ ): compound occurring in the free state in the flowers of meadow-sweet (*Spiraea ulmaria*) and as a methylic ether in oil of wintergreen (*Gaultheria procumbens*), from which it may be obtained by distillation with potash. S. A. is prepared on the large scale by heating sodium phenate in a stream of carbon dioxide, phenol then distilling over, while disodium salicylate remains behind:



The reaction takes place even below  $212^{\circ}$  F., but proceeds most quickly between  $338^{\circ}$  F. and  $356^{\circ}$  F., and goes on in the same way up to  $604^{\circ}$  F. S. A. crystallizes from its alcoholic solution by spontaneous evaporation in large monoclinic prisms. It requires about 1,800 parts of cold water to dissolve it, but is much more readily soluble in hot water and in alcohol. At  $311^{\circ}$  F.— $313^{\circ}$  F. it melts, and at a higher temperature gives off phenol: heated with powdered glass or quicklime, it is completely resolved into carbon dioxide and phenol. It is a very powerful antiseptic.—*Salicylate of soda* ( $2NaC_6H_5O_3H_2O$ ) is prepared by mixing 100 parts of pure salicylic acid with sufficient water

## SALIENT—SALINA.

to form a paste, and then adding 104 parts of sodic carbonate. Salicylate of soda forms small, colorless, or nearly colorless crystalline scales, inodorous, and possessing a sweetish saline taste, soluble in fifteen parts of cold water and in six parts of alcohol, very soluble in water at 212° F., the solutions being neutral or very faintly acid. Like salicylic acid, salicylate of soda is strongly antiseptic, and is frequently added to fermented liquors to preserve them. It is now medicinally used as a remedy for rheumatism.



Salient.

**SALIENT**, a. *sā'lē-ēnt* [L. *saliens* or *salien'tem*, leaping—from *salīrē*, to leap]: leaping; beating; springing; projecting outward, as an angle; forcing itself on the attention; conspicuous; noticeable. **SA'LIENTLY**, ad. *-lē*. **SA'LIENT**, a. or **SA'LIANT**, a. *-ant*, in *her.*, presenting a lion or other beast in a leaping posture—differing slightly from Rampant (q.v.)

**SALIENTIA**, *sā-lē-ēn'shi-a*: term applied sometimes to the order Batrachia (q.v.): see also FROG (genus): TREE-FROG: TOAD.

**SALIFEROUS**, a. *sāl-if'er-ūs* [L. *sal*, salt; *fero*, I produce]: yielding or bearing salt; an epithet applied to the New Red Sandstone system, but no longer in use, since salt has been found with strata of all ages in various parts of the world.

**SALIFY**, v. *sāl'i-fī* [L. *sal*, salt; *faciō*, I make]: to form into a salt. **SAL'IFYING**, imp. **SAL'IFIED**, pp. *-fid*. **SAL'IFI'ABLE**, a. *-fi'a-bl*, capable of combining with an acid to form a salt. *Salifiable base* is any substance thus capable. **SAL'IFICA'TION**, n. *-fi-kā'shūn*, the act of salifying.

**SALINA**, *sa-lī'na*: city, cap. of Saline co., Kan.: on the Atchison Topeka and Santa Fé, the Chicago Kansas and Nebraska, the Missouri Pacific, and the Union Pacific railroads; 118 m. w. of Topeka. It is in the centre of the state, and its immediate vicinity is watered by the Smoky Hill, Salmon, and Saline rivers, the first furnishing water-power for 4 large flour-mills on its banks. The city contains 2 nat. banks (cap. \$150,000), 2 state banks, 1 private bank, 17 churches, 5 public school buildings (value of school property \$100,700), 1,239 enrolled pupils, Röm. Cath. school building (cost \$25,000), Normal. Univ., Kansas Wesleyan Univ. (founded 1885, 19 instructors, 305 students male and female grounds and buildings valued at \$30,000, productive funds \$35,000), milit. college, 12 hotels, opera-house, 3 public parks, and a driving park with what is claimed to be the best half-mile race-track in the state. There are more than 30 manufactories (including flour-mills with capacity of 1,000 bbls. per day), municipal improvements (cost \$8,000,000), water-works (cost \$110,000), 2 electric light plants (cost \$75,000), and 9 daily, weekly, and monthly publications. Pop. (1900) 6,074.

**SALINA**, *sā-lē'nā*, or **SALINI**, *sā-lē'nē*: one of the Lipari Islands (q.v.).

## SALINE—SALINE POWDER.

SALINE, a. *sālin* or *să-lin'* [F. *salin*, saline—from L. *salīnum*, a salt-cellar—from *sal*, salt: It. *salino*]: consisting of salt, or constituting salt; partaking of the qualities of salt: N. a salt-spring. SALINENESS, n. *să-lin'nēs*, the state of being saline. SALINAS, n. plu. *să-lī'naz*, the name given in S. Amer. to those superficial deposits which often occupy extensive plains on the Pacific or rainless side of the Andes—usually covered with a white saline efflorescence. SALINATION, n. *săl'i-nă'shün*, a washing or steeping in salt liquor. SALINIF'EROS, a. -*nĭf'er-üs* [L. *fero*, I produce]: producing salt. SALINOM'ETER, n. -*nōm'ē-tér* [Gr. *metron*, a measure]: an instr. for measuring the quantity of salt that may be in solution in the water of the boiler of a marine steam-engine, indicated by the specific gravity of the water. SALINE MEDICINES, such salts as magnesia, potash, soda, and common salt. SALINE SPRINGS, springs which contain a large percentage of such salts. SALIMETER, n. *sa-lim'ē-tér* [L. *sul*, salt; Eng. *meter*]: instrument for measuring the amount of salt present in a solution.

SA'LINE PLANTS: plants which require for their healthy and vigorous growth a considerable supply of *chloride of sodium* (common salt) and other salts, and which are therefore limited to peculiar situations. Few are strictly aquatic except the marine Algæ, or sea-weeds, which grow immersed in salt water, either always or in certain states of the tide, and derive their nourishment from it through their fronds, and not by roots from the rock to which they are attached. Grasswrack (q.v.), however, is an instance of a phanerogamous plant living entirely and always immersed in salt-water. Other phanerogamous plants grow chiefly or only on the sea-shore and in salt marshes. Some of these, however, as the sea-kale, may be cultivated in gardens remote from the sea, but they thrive best when liberally supplied with salt. Asparagus is another well-known garden-plant, which derives much benefit from similar treatment. Some of the Saltworts (q.v.) and other saline plants yield much soda when collected and burned, and the produce was a former article of export from Spain and other countries under the name Barilla (q.v.). The dry steppes of Russia and Tartary, having in many places a strongly saline soil, are covered with very peculiar vegetation. Among the ornaments of these steppes is *Halimodendron argenteum*, shrub of nat. order *Leguminosæ*, often cultivated in gardens for its beautiful rose-colored flowers and silvery gray leaves. Saline plants have all their tissues impregnated with salt.

SA'LINE POWDER, COMPOUND: popular and harmless form of aperient medicine. There are several varieties prepared by druggists: the following is a specimen of a laxative usually efficacious and not unpleasant. Take half an ounce of carbonate of magnesia, and an ounce of each of the following—viz., sulphate of magnesia, bicarbonate of soda, tartrate of soda and potash, and tartaric acid. Expel all the water of crystallization, and mix. This powder, if kept dry, effervesces when mixed with water, and one or two teaspoonfuls are the average dose.

## SALINS—SALISBURY.

**SALINS**, *sá-léng'* (anc. *Salinae*): town of the dept. of Jura, France, 52 m. n.-by-w. from Geneva; on the Furieuse, a feeder of the Doubs. It is in a narrow rocky gorge between two lofty hills, looking on a fertile and beautiful valley. It derives its importance, and its name, from its salt-works. The salt is obtained from brine-springs, and the evaporation of the brine is done mostly in a great building, in the valley below the town, which has long borne the name *Salines Royales*; but that of the weaker springs is conveyed in pipes 15 m. to the forest of Chaux, where it is first slowly evaporated in *maisons de graduation*, and afterward by boiling. There are iron-works, soda-factories, tanneries, and quarries of gypsum in S. and its neighborhood. Pop. (1891) 6,068.

**SALIQUE**, a. *sál'ik* or *sál'ēk* [F.]: same as SALIC, which see.

**SALISBURY**, *sawlz'bér-i*: town in the n.w. corner of Conn., in Litchfield co., 63 m. n.w. of Hartford; noted for its scenery, embracing the Twin and other lakes, the Taconic Mts., and the highest land in the state, Bear Mt. Besides the village of S., there are Lakeville, Chapinville, etc., on the Hartford and Western railroad; and Lime Rock, a manufacturing centre. Ethan Allen had a forge for cannon in S., in the revolutionary war. Two of the 7 iron mines are now active. There are factories of knives, rules and levels, car-wheels, a blast furnace, shops of the Housatonic railroad: 2 banks, 5 post-offices; the Conn. School for the Feeble Minded, over 100 inmates; a large school for boys preparing for Yale Coll., etc. Pop. of tp. (1880) 3,715; (1890) 3,420; (1900) 3,489.

**SALISBURY**: city, cap. of Rowan co., N. C.; at junction of branches of the Southern r.r.; 44 m. n.n.e. of Charlotte; in an agricultural and mining region. It has manufactures of cotton and woolen goods and tobacco, iron-foundries, a car-shop, etc.; and is the seat of Livingstone col. (A. M. Episc. Chh.) and of a colored state normal school, the former having (1894-5) 148 students.—Pop. (1880) 2,783; (1890) 4,418; (1900) 6,277.

**SALIS'BURY, EDWARD ELBRIDGE, LL.D.**: philologist: b. Boston 1814, Apr. 6. He graduated from Yale College 1832, from the Yale Theol. Seminary 1835, went abroad for the study of oriental languages; and 1841 became prof. of Arabic and Sanskrit at Yale. He endowed the chair of Sanskrit, and 1854 was succeeded by Prof. Whitney, but remained prof. of Arabic till 1856. He was prominent in founding the American Oriental Soc., was for many years editor of its journal, and was a member of various learned bodies. He died 1901, Feb. 5.

**SALISBURY**, *sawlz'bér-i*, or NEW SARUM, *sá'rúm*: capital of Wiltshire, England; an episcopal city, and municipal and parliamentary borough, in a fertile valley on the Avon, at the junction of that river with two of its affluents, 83 m. s.w. of London by the Southwestern railway, 23 m. n.w. of Southampton by a branch of the same. Its several parts are connected by three bridges. The town dates

## SALISBURY.

from 1220, in which year the cathedral was founded, and the inhabitants of Old Sarum (see SARUM, OLD), two m. to the n., removed to S., attracted to the new site by the abundant supply of water. At the foundation of the town, the ground was divided into squares, or 'chequers' as they are called, to which is due its appearance of airiness and regularity. The cathedral, the principal building of S., is one of the finest specimens of early English in the country. It was begun 1220, finished 1258. The spire, added afterward, is the 'most elegant in proportions and the loftiest in England.' Its height from the pavement is 400 ft.; only 60 ft. less than that in Strasburg. The cathedral is 449 ft. long; height in the interior, 81 ft.; width of great transept, 203 ft. It is in the form of a double cross, is perfect in plan and proportions, and in the main uniform in style. The w. front is still rich, beautiful, and graceful, though now denuded of statues, more than 100, with which it was formerly enriched. The cathedral has been recently restored.—The manufactures of cutlery and cloth, for which S. was famous, have long declined, and its trade is now chiefly in retail. Pop. (1871) 13,839; (1881) 15,659; (1891) 17,362.

SALIS'BURY, ROBERT ARTHUR TALBOT GASCOIGNE CECIL, Marquis of, K.G.: statesman: b. Hatfield, Herts, Eng., 1830. He was educated at Eton School, and at Christ Church, Oxford. He was M. P. for Stamford 1853–1865, June 14, when at his father's death he succeeded to the peerage. In the meantime he was styled, at first, Lord Robert Cecil, and then on the death of his elder bro., he assumed the title Viscount Cranborne. He was sec. of state for India 1866, July—1867, Mar. He was elected chancellor of the Univ. of Oxford 1869. Again he became sec. of state for India 1874, Feb. He was special ambassador to the Sublime Porte 1876–7, and was a member of the conference at Constantinople of representatives of European powers with the sultan's ministers. On his return home, S. was appointed sec. of state for foreign affairs 1878, Apr. 2, and soon afterward went with Lord Beaconsfield to Berlin as representatives of England in the congress there held. He went out of office with Beaconsfield's govt. 1880, Apr. After the death of Beaconsfield S. became leader of the conservative party in the house of lords. He became premier 1885, June 9. In the general election 1885, the liberals won, and S. went out of office; but again he became prime minister 1886. In 1892 his ministry fell on the question of Home Rule for Ireland, but with the defeat of that measure in Parliament S. again became prime minister, 1895, July 26. Before he succeeded to the marquisate, S. was a frequent contributor to the *Quarterly Review*, the *Saturday Review*, and other periodicals. Lord S.'s leadership added strength to the conservative party: its most notable qualities were its sagacity and foresight, its fertility in expedients, and a certain audacity in claiming and holding a position for the party. In 1902 he resigned, was succeeded by Arthur James Balfour. Died 1903, July 22.

## SALISBURY PLAIN—SALIVARY GLANDS.

SALISBURY PLAIN: extensive tract of undulating chalk country, in Wiltshire, England, between Salisbury and Devizes; about 20 m. long from n. to s., and about 14 m. broad. Its rolling surface resembles that of the ocean heaving after a storm. On this plain, about 8 m. n. of Salisbury, is Stonehenge (q.v.). Until within recent years, the expanse of S. P. remained in a state of nature, and was covered with a fine turf, which afforded pasture to sheep. The natural features of the plain, however, are now much changed. N. and s. of Stonehenge, wild slopes of thistle-covered turf still extend; but both e. and w. of it, the country is laid out in cultivated fields; and within gun-shot of the desolate old relic, is a neat modern farmhouse.

SALISH, *säl'ish*, or SELISH, *sĕl'ish*: one of the Indian families of the Columbian group, located in the n.w. part of the United States. It is made up of the following tribes: the Colvilles and the Pisquouses on the Columbia river; three groups of the Kalispels; the Skitsuish, on a lake of the same name; the Spokanes, on the Spokane river; and the Flatheads. Some of these tribes have embraced the Rom. Cath. faith. They closely resemble various tribes of the Shushwap group.

SALIVA, n. *sü-lī'va* [L. *salivā*, spittle: It. *saliva*; F. *salive*]: the frothy fluid which gathers in the mouth—when discharged from the mouth, it is called *spittle*. SALIVAL, a. *-val*, or SALIVARY, a. *säl'i-vär-i*, pertaining to saliva; secreting or conveying saliva, as glands. SALIVATE, v. *-vät*, to produce an unusual secretion and flow of saliva—usually by administering mercury. SALIVATING, imp. SALIVATED, pp. SALIVANT, a. *-vant*, producing salivation: N. that which produces salivation. SALIVATION, n. *-vā'shūn* [F.—L]: act or process of producing an excessive flow of saliva—usually by mercury (see below). SALIVOUS, a. *sa-lī'ves*, pertaining to saliva, or resembling it.

S'ĀLIVĀHANA, *sā-lé-vā'ha-na*: Hindu prince, said to have reigned in Magadha or South Behar. He instituted an era which bears his name, and which began when 3,179 years of the Kali-yuga, or the present mundane age, had expired; i.e., 78 years after the beginning of the Christian era. This era is called S'āliyāhana S'āka, or simply S'āka. The S'āka year is the same as, and begins with, the common solar year.

SALIVARY GLANDS: glands secreting or conveying saliva. Under this name are designated three pairs of glands—the parotid, the submaxillary, and the sublingual, each gland having an efferent duct, which conveys the glandular secretions into the mouth, where, when mixed with the mucus secreted by the follicles of the mucous membrane lining the mouth, they constitute the ordinary or mixed saliva.

The *Parotid Gland* [named from Gr. *para*, near, and *ous*, the ear] is the largest of the three glands occurring on either side. It lies on the side of the face immediately in front of the external ear, and weighs from half an ounce

## SALIVARY GLANDS.

to an ounce. Its duct is about two inches and a half long, and opens into the mouth by a small orifice opposite the second molar tooth of the upper jaw. The walls of the duct are dense and somewhat thick, and the calibre is about that of a crowquill.

The *Submaxillary Gland* is, as its name implies, below the jawbone (part of which is cut away in the figure), and is placed at nearly equal distances from the parotid and sublingual glands. Its duct is about two inches in length, and opens by a narrow orifice on the top of a papilla, at the side of the *frænum* of the tongue.



The Salivary Glands.

- 1, the parotid gland; 2, the submaxillary gland; 3, the sublingual gland; 4, Steno's duct; 5, Wharton's duct; 6, Bartholin's duct; 7, masseter muscle; 8, mastoid process; 9, digastric muscle; 10, internal jugular vein; 11, external carotid artery; 12, the tongue.

The *Sublingual Gland* is, as its name implies, under the tongue, each gland lying on either side of the *frænum* of the tongue. It has a number of excretory ducts which open separately into the mouth.

For the minute structure of the parotid gland, see **GLAND**: the other salivary glands are similarly constituted. True salivary glands exist in all mammals, except the eatacea, in birds, and reptiles (including amphibians), but not in fishes; and glands discharging a similar function occur in insects, many mollusks, etc. For the chemical and physical characters of the saliva, see **DIGESTION**.

The most common disease of the parotid gland is a specific inflammation: see **MUMPS**. The term *Parotid Tumors* is given to tumors of various kinds occurring in front of the ear and over the parotid gland. With regard to surgical interference, Liston recommends that 'if there be reason to suspect that the disease is of a malignant nature, and not thoroughly limited by a cellular cyst, no interference is admissible; if, on the contrary, it be at all movable,

## SALIVATION.

has advanced slowly, possesses a smooth surface, and is firm, then an operation may be contemplated.'

Certain functional disorders of the salivary glands require notice, of which the most important is that known as *Salivation* (q.v.), or *Ptyalism*, which consists in a much increased secretion of saliva. *Deficient Secretion* is indicated by clamminess or dryness of the mouth, and is common in low forms of fever; it is important as indicating the condition of the system, and seldom requires treatment. If it should occur as an original affection, it must be treated by local Sialogogues (q.v.), such as licorice, horse-radish, pellitory, etc. *Alteration of the Saliva* often occurs in disease; e.g., it sometimes loses its alkaline character, and becomes acid, as in acute rheumatism, diabetes, etc.; while in other cases, it becomes so fetid as to be a source of annoyance both to the patient and his friends; e.g., in scurvy, various forms of dyspepsia, salivation, etc. The undue acidity may be corrected by administration of carbonate or bicarbonate of soda, while the fetor may be relieved by attention to diet, and by use, both local and general, of creosote, nitro-muriatic acid, charcoal, chlorate of potash, etc.

*Ordinary Inflammation* of these glands (distinct from mumps) may proceed from cold or local injury, but is produced often by decayed teeth.

**SALIVA'TION**, or **PTYALISM**, *ti'a-lizm*: abnormally abundant flow of saliva. It arises most frequently from a specific form of inflammation of the parotid glands, induced by the action of mercury, in which case it is termed mercurial salivation; but it arises occasionally from the action of other drugs, especially iodide of potassium; and sometimes it occurs without any apparent cause, in which case it is said to be *idiopathic* or spontaneous.

Mercury, in some form or other, is so common an ingredient in quack medicines that a popular knowledge of the most remarkable manifestations of this powerful mineral should be widely diffused. When this medicine is given in such a way as to excite S., a metallic taste in the mouth is soon recognized by the patient, and a remarkable but indescribable smell, known as the mercurial fetor, may be detected in his breath; the gums become swollen and spongy at their edges, and usually present a few slight ulcers; and an increased flow of saliva takes place, accompanied by pain in the teeth on pressure. If these symptoms be not checked (and *a fortiori* if more mercury be given), the tongue, cheeks, and throat swell and ulcerate, and the saliva that flows away amounts to several pints in the course of the day. This peculiar action of mercury varies extremely in different persons. Dr. Watson, in his 14th Lecture, records several remarkable cases in which a single small dose of mercury produced the severest S. Cases of the opposite kind, in which no impression on the gums or salivary glands can be made by the freest use of mercury, are not infrequent. It is worthy of notice that S. is rarely produced in children before the age of 10 years. Until a comparatively recent period,

## SALIX—SALLET.

profuse S. was deemed the only certain indication that the system was duly under the influence of mercury (indeed, it was believed that the cause of the disease was carried out of the body with the saliva); but now it is well known that all that is requisite is, that the gums should become distinctly tender, and that the mercurial fetor should be unmistakably present, and that those symptoms should be kept up for a certain time. Unfortunately, however, the physician cannot always stop the action of the mercury at that definite stage, and S. to a distressing extent often occurs, even with the greatest care in administration of the medicine. To check this excessive S. the internal administration of chlorate of potash in scruple doses, three times a day, together with the frequent use of a gargle of the same salt, has been recommended by several high authorities. Some eminent authorities advocate a gargle of one part of brandy to four or five of water, and the application of moistened tannin to the gums.

In the confluent form of small-pox, there is almost always more or less abundant S., which lasts several days; and if it cease abruptly, the peril is usually great. Moreover, there is a more or less marked tendency to S. in scurvy, hysteria, hydrophobia, some forms of mania, and frequently in pregnancy.

Various cases of spontaneous S. have been collected by Dr. Watson in his 44th Lecture. In one instance of a girl ten years old, under his own care, no less than three pints of saliva were excreted in 12 hours. Medicine had no effect; but the S. finally ceased spontaneously after a severe attack of influenza. In these cases, astringent washes, as a solution of alum, or the infusion of catechu, or a few drops of creosote suspended by mucilage in water, are deserving of trial.

SA'LIX: see WILLOW.

SALLE, LA: see LA SALLE.

SALLEE, *sâl'lâ*, or SLA, *slá*: seaport town of Morocco, in the territory and former kingdom of Fez, 106 m. w from Fez. It stands on a low sandy point of the shore of the Atlantic, at the mouth of the Bu-Regreb, on the n. side of the river, and opposite, on the s. side, is the town of Rabat. Both S. and Rabat were bombarded and nearly destroyed by the French 1851. S. was in former centuries noted as a haunt of pirates, and a *Sallee Rover* was



Sallet.

the dread of peaceful mariners in the Atlantic and Mediterranean. It is noted for the carpets which it produces, of fine texture and bright colors: they are used mostly in Morocco. The chief export from S. is wool. Pop. estimated about 12,000, of whom 3,000 are Jews.

SALLET, n. *sâl'lêt* [*O. salade*; It. *celata*, a helmet] from L. *cælārē*, to ornament]: in *OE.*, a headpiece; a helmet;

## SALLIANCE—SALLOW.

SALLIANCE, n. *sūl'lō-ans* [see SALLY]: in *OE.*, the act of issuing forth; a sally.

SALLIE, or SAULLIE, n. *sawl'i* [corrupted from *salvē* in *salvē Regīna!* hail, Queen of Heaven!]: formerly in *Scot.*, a hired mourner at the better class of funerals; two or more of these *sallies* preceded the corpse carrying long black staves surmounted by large cylindrical black hoods; in earlier times they chanted prayers.

SALLOW, a. *sāl'lō* [AS. *salu*, sallow: Bav. *sal*, discolored: Dut. *zaluw*, tawny: F. *salir*, to dirty: Gael. *salaich*, to sully]: of a pale sickly color, tinged with dark yellow. SAL'LOWNESS, n. *-nēs*, paleness, tinged with a dark yellow.

SALLOW, n. *sāl'lō* [AS. *sealh*; Gael. *seileach*; L. *salix*, a willow]: popular name of a number of species of Willow (q.v.), trees or low shrubs with downy branches, and generally ovate or obovate, wrinkled leaves having stipules.



Gray Sallow (*Salix cinerea*).

The GRAY S. (*Salix cinerea*) is one of the common species, growing in moist and swampy places. Other European common species are the ROUND-EARED S. (*S. aurita*); and the GREAT ROUND-LEAVED S. (*S. caprea*), the latter remarkable for preferring a dry soil, and becoming a small tree, whose wood is used for handles of agricultural implements, and furnishes charcoal used for gunpowder. The LONG LEAVED S. (*S. acuminata*) differs from the other kinds in its lanceolate leaves. None of the sallows produce such long and slender twigs as the osiers, nor are they adapted for any but the coarsest wicker-work, and some are so apt to break that they cannot easily be used in that way. But shoots of two years' growth are split up, and used for making hoops of barrels. For American species, see WILLOW.

## SALLOW-THORN.

SAL'LOW-THORN (*Hippophaë*): genus of plants of nat. order *Elaeagnaceæ*, consisting of large shrubs or trees with gray silky foliage, and entire leaves. They have diœcious flowers: the perianth is tubular, becomes succulent, incloses an achene, and forms an acid fruit. Few species are known: one only is European, *H. rhamnoides*, sometimes called the SEA BUCKTHORN, large shrub or low tree, native of the sandy sea-coasts of England and the continent of Europe, found also throughout great part



Sallow-thorn (*Hippophaë rhamnoides*):

*a*, Branch of the female plant, in fruit; *b*, branch of male plant, in flower.

of Tartary. It is sometimes planted to form hedges near the sea, growing luxuriantly where few shrubs will thrive. The berries are orange-colored. They are gratefully acid, and are used for making a sauce in s. France: a rob or jam is made of them on the shores of the Gulf of Bothnia, to impart flavor to fresh fish; and a preserve or jelly from them is a luxury of the Tartars. The *stellate* hairs of the underside of the leaf, covering it like scales, are a beautiful microscopic object.

## SALLUST.

**SALLUST**, *säl'lüst* (CAIUS SALLUSTIUS CRISPUS): Roman historian: b.c. 86-34; b. Amiternum, in the Sabine country. Though of plebeian family, he rose to official distinction, first as *quaestor* about 59, afterward as *tribune of the people* 52, when he joined the popular party against Milo, who in that year had killed Clodius. His reputation for morality was never high; and his illicit connection with Milo's wife is assigned as the cause of his being expelled in 50 from the senate, though his attachment to Cæsar's party is a more plausible reason of his expulsion. In the civil war, he joined the camp of Cæsar; and in 47, when Cæsar's fortune was in the ascendant, he was made *pretor-elect*, and restored to his former rank. In 46, we find him engaged in Cæsar's African campaign, at the close of which he was left as *gov. of Numidia*. His administration was sullied by various acts of oppression, particularly, as some have charged, by his enriching himself at the expense of the people. He was, for these offenses, accused before Cæsar, but seems to have escaped trial. His immense fortune, so accumulated, enabled him to lay out those magnificent grounds, still known as the gardens of Sallust, on the Quirinal, to retire from the prevailing civil commotion into private life, and to give his remaining years to those historical works on which his reputation rests. His histories, which seem to have been begun only after his return from Numidia, are: 1st, *The Catilina*, or *Bellum Catilinarum*, descriptive of Catiline's conspiracy in 63, during the consulship of Cicero; 2d, *The Jugurtha* or *Bellum Jugurthinum*, commemorating the five years' war between the Romans and Jugurtha, King of Numidia. These, the only genuine works of S. which have reached us entire, are of great but unequal merit. The quasi-philosophical reflections which are prefixed to them are tiresome, and of no value; but the histories themselves are powerful and animated, and contain effective speeches of his own composition, which he puts into the mouths of his chief characters. With its literary excellence, however, the value of the *Jugurtha* stops, as in military, geographical, and even chronological details, it is very inexact. His now lost work, *Historiarum Libri Quinque*, is believed to have described the events between Sulla's death, b.c. 78, and the year of Cicero's pretorship, 66. The *Duae Epistolæ de Republica Ordinanda*, and the *Declamatio in Ciceronem*, are of doubtful authenticity.

Apart from his literary qualities, which are rather those of an artificial than a natural writer, and which are not enhanced by his affectation of brevity, and his love of archaic expressions, S. has the merit of having been the first Roman who wrote what we now understand by 'history.' In official public life, he was more of a politician than a statesman; and the views which he supported were liberal, not so much because he loved the people, as because he hated the nobility. The best editions of his literary remains are those of Corte (Leip. 1724), Gerlach (Basel 1823-31), Kritz (1828-34), Fabri (1831), Dietsch (1842), Merivale (1852), Long (1860), and Capes (1884).

## SALLY—SALMASIUS.

**SALLY**, n. *să'l'li* [*L. saillie*, a breaking out upon, a gush; *saillir*, to gush out—from *L. salire*, to spring]: a sudden rush of troops from a besieged place to attack the besiegers;



Sally-port.

by which a sally may be made from the covert-way: when not in use, sally ports are closed by massive gates of timber and iron.—**SYN.** of ‘sally, n.’: eruption; sortie; egress; range; excursion; flight; escape; levity; frolic.

**SALLY LUNN**, n. *să'l'li lün*: tea-cake, so called from Sally Lunn, pastry-cook of Bath, England, near the end of the 18th century.

**SALMAGUNDI**, n. *să'l'ma·gün'di* [F. *salmagondis*: origin doubtful, but comp. L. *salgamá*, pickles preserved in brine—from *sal*, salt]: a mixture of various ingredients with seasoning; an olio or medley.

**SALMASIUS**, *săl-mă'shi-üs*, CLAUDIUS (Latinized form of CLAUDE DE SAUMAISE): 1588, Apr. 15—1653, Sep. 3; b. Semur in Burgundy: famed French scholar. His father, a man of superior erudition, was his first teacher. At the age of ten young S. translated Pindar, and composed Greek and Latin verses. He studied philosophy at Paris, under Casaubon; and at Heidelberg, studied jurisprudence, and publicly professed Protestantism, the religion of his mother. So insatiable at this time was his thirst for book-knowledge, that he was wont to devote two whole nights out of three to hard reading, by which he brought himself near the grave. In 1608 he published from MSS. two treatises of the secretary Nilus, Abp. of Thessalonica, and a work of the monk Barlaam on the primacy of the pope. In 1629 appeared his chief work, *Plinianæ Execitationes in Caii Julii Solimi Polyhistora* (2 vols. Par. 1629); after which, he set himself vigorously, and without a master, to acquire a knowledge of Hebrew, Arabic, Coptic, and other oriental tongues. In 1631 he was called to Leyden, to occupy the chair that Joseph Scaliger had held; and from this period his European reputation dates. Various efforts were made (1635–40) to induce S. to return to France, but he declined them on the ground that his spirit was too ‘liberal’ for his native land. Queen Christina of Sweden, however, managed to bring him to Stockholm, and fix him there for a year (1650–1), after which he returned to Holland. He died of a fever caught by imprudently drinking the waters at Spa.—S. was certainly a fine verbal critic and commentator of the old-fashioned clumsy sort; but neither his wit

## SALMI—SAL-MIRABILE.

nor his acumen were adequate to give an intellectual and critical value to his lucubrations for modern use; and though all his distinguished contemporaries, Casaubon, Gronovius, Grotius, Vossius, etc., deluged him with praise; though Balzac pronounced him *infallible*; though the curators of the Univ. of Leyden declared that ‘their university could no more do without Salmasius than the world without the sun;’ though Queen Christina—delighted with his *Defensio Regia* until she had seen Milton’s reply to it two years later—went the length of saying, with truly royal flattery, ‘that she could not live without him;’ yet he is remembered, not for his stores of erudition, his editions of the classics, or his treatises on classical antiquities, but for his controversy with John Milton, probably his equal in scholarship and immeasurably his superior in power of brain, and in all the arts of literary warfare. The question at issue was the lawfulness of the execution of Charles I. The great poet utterly overwhelmed S., partly by the magnificence of his language and sentiments, and partly by the intense moral enthusiasm for his subject, which gave fury to his invective. S. also had been grossly abusive and acrimonious in his treatise which called forth Milton’s crushing reply (*Defensio Regia pro Carolo I.*, 1649); *asinus* (ass), *pecus* (beast), and such expressions being showered about quite freely; but his work is deficient in logic, in real force of sarcasm, and intellectual vigor generally. He had previously written against the Independents and in favor of Presbyterianism or of a modified Episcopacy.—S. in his private character was altogether estimable.

**SALMI**, or **ALMIS**, n. *săl'mē* [F. *salmis*, a hash]: a superior kind of ragout of game or wild fowl that have been half-cooked for the purpose.

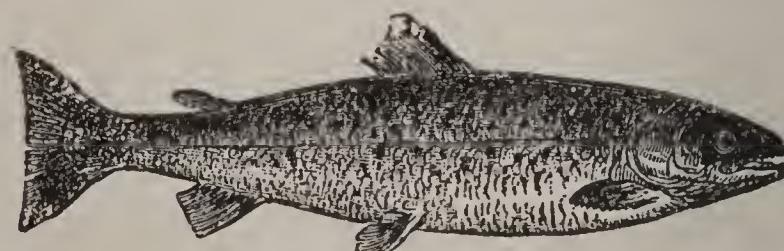
**SAL-MIRABILE**, n. *săl'mi-răb'i-lē* [L. wonderfull salt]: see under **SAL**.

## SALMON.

**SALMON**, n. *sām'ūn* [L. *salmo* or *salmonem*, a salmon : It. *salmone* : F. *saumon*] : a sea-fish, having reddish flesh, which ascends rivers to deposit its spawn. **SALM'ONET**, n. -*ūn-ēt*, or **SAMLET**, n. *sām'lēt*, a young or little salmon. **SALMONOID**, a. *sāl'mōn-oyd* [Gr. *eidos*, appearance] : similar to a fish of the salmon family. **SALMONIDÆ**, n. plu. *sāl-mōn'i-dē*, the salmon family, including the salmon and the trout tribes (see below). **SALMON-FRY**, the salmon when recently hatched from the spawn : **SALMON-PEEL**, a young salmon. **SALMON-TROUT**, a sea trout, a migrating fish, next in value to the salmon.—*Salmon* (*Salmo*), is a genus of fishes of family *Salmonidæ* (q.v.), which as characterized by Cuvier, has teeth on the vomer, both palatine bones, and all the maxillary bones. A popular division, having regard to characters really conspicuous and important, and to the habits of the species, is the simple one of Pennell (*The Angler Naturalist*, 1863) : '1. The Silver, or Migratory species (i.e., thos. migrating to and from the sea); 2. The Yellow, or Non-migratory species; 3. The Charrs, or Orange and Red-colored species.' The present article treats especially of the first of these groups : for the second, see **TROUT** : for the third, see **CHARR**.

By far the most important of the three *Salmonidæ* which ascend rivers from the sea is the **SALMON** (*Salmo salar*), in commercial importance superior to any other fresh-water fish, both from its abundance and from its delicious flavor. From ancient times it has furnished important supplies of food. Even rivers in Iceland now yield a rent, and are regularly netted for the supply of the British market, to which the S. are brought, as from other n. regions, fresh, in ice. Many rivers and streams of Norway and Canada are now frequented by British anglers, as affording sport deemed incomparable.

The S. is one of the largest species of the genus, having been known to attain the weight of 83 lbs. Very large S., however, are rare, owing to the eagerness with which the fishery is prosecuted. No fish is more symmetrical or beautiful than the S.; and its form is admirably adapted to rapid motion even against powerful currents, by the regular tapering from the front of the first dorsal fin both to the snout and to the tail. The under

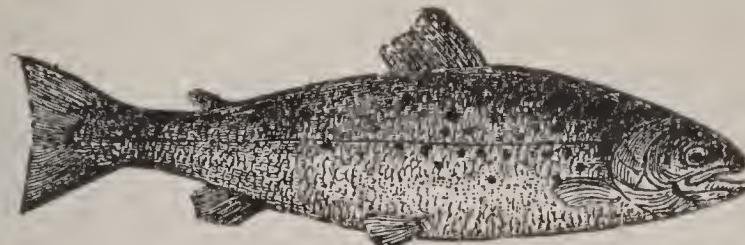


Salmon (*Salmo salar*).

jaw of the male becomes hooked during the breeding season with a kind of cartilaginous excrescence, which is used as a weapon in the combats then frequent, wounds so severe being inflicted with it that death sometimes

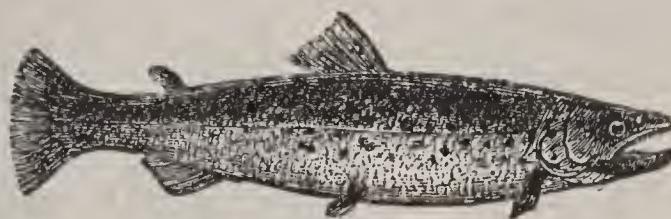
## SALMON.

ensues. The lateral line is nearly straight. The scales are small, and the color a rich bluish or greenish-gray above, changing to silvery-white beneath, sprinkled above



Salmon Trout (*Salmo trutta*).

the lateral line with rather large black spots. The opercular bones show a rounded outline at the hinder edge of the gill-covers, which at once distinguishes this species from the other European species, the Salmon Trout and the Gray or Bull Trout. The tail is forked in the young



Gray or Bull Trout (*Salmo eriox*).

S., becomes nearly square in the adult. The array of teeth indicates voracity, and the S. seems to prey readily on almost any animal which it is capable of capturing. Small fishes seem to constitute part of its food; and in fresh water, the minnow, trout-fry, or the fry of its own species, worms, flies, etc. The angler catches S. with the artificial fly, or with the minnow, or the worm; and no bait is more deadly than the roe of the S. itself, the use of which is indeed prohibited in British statutes for protection of the S. fisheries.

The S. is found on all n. parts of the Atlantic, and into the rivers which fall into that ocean, as far s. at least as the Loire on the European side, and the Hudson on the American. Slight differences can be noticed between the Amer. and the European S., but not sufficient to distinguish them as species. The S. frequenting one river are often characteristically different from those of another river of the same vicinity. The S. is not found in the Mediterranean nor in the Black Sea, nor in any rivers falling into them. S. is in perfection for the table only when recently taken from the water; while the fatty 'curd' remains between the flakes of its flesh, which, however, begins to disappear within 12 hours, though otherwise the fish is quite fresh. Hence the peculiarly high value formerly ascribed in London to *Thames salmon*.

The S., after its first migration to the sea, passes a great part of its life in it, though under the necessity of periodically ascending rivers, in which the S. that ascend

## SALMON.

to spawn sometimes remain during most of the winter S. return, in preference, to the same rivers in which they have passed the earliest part of their existence; as appears both from records of marked S., and from the characteristic differences alluded to. S. ascend rivers to a great distance from the sea, as the Rhine to the Falls of Schaffhausen, and the Elbe to Bohemia. The speed with which they glide through the water in their most rapid movements is very great; it is said to be not less than 1,500 ft. in a minute, or at the rate of 400 m. a day; but this, of course, is sustained for only a few moments, and the ordinary rate of progress in ascending rivers is supposed to be 10 to 25 m. a day. The perpendicular height which the S. can pass over by leaping when there



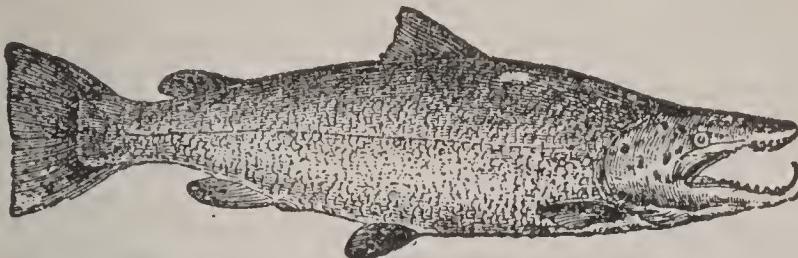
Salmon-ladder.

is abundance of water in the river and sufficient depth in the pool below the fall, seems to be not more than 12 or 14 ft.; they attempt higher leaps, but often fall back exhausted, or fall on adjacent rocks. They do, however, rush up steep and broken cataracts of much greater height. The ascent of many rivers by S. has been stopped by high weirs, dams, and other obstructions; but very simple and effectual means have been devised to reconcile the interests of manufacturers and fishery proprietors by *fish-stairs* or *fish-ladders*, which are often very conveniently formed by partitioning off a portion of the fall, and intersecting it from alternate sides, two-thirds of its width, by transverse steps of wood or stone, so as partially to divide it into a succession of falls. The S. soon find out the ladder, and leap up from one step to another.

As the time of spawning approaches, S. undergo considerable changes of color, besides the change of form above noticed in the snout of the male. The former brilliancy of the hues gives place to a general duskiness

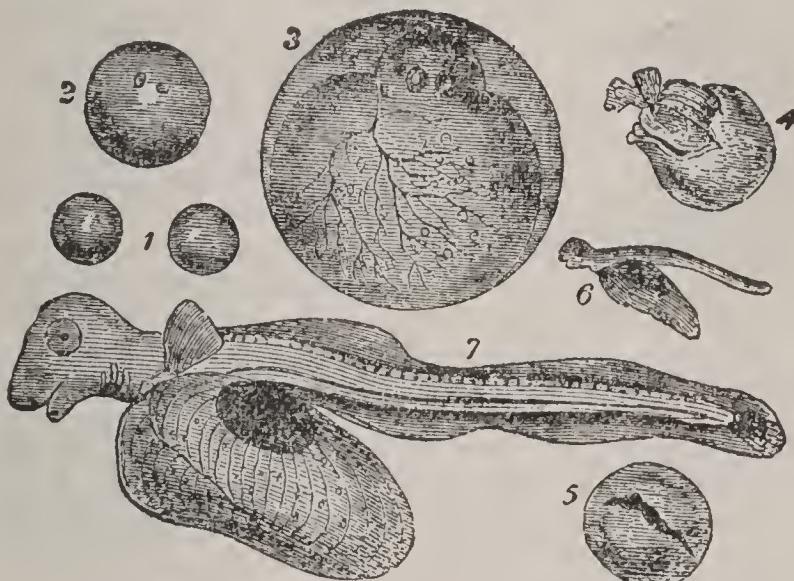
## SALMON.

approaching blackness in the females, much tinged with red in the males; and the cheeks of the males become marked with orange stripes. S. in this state are ‘foul



Old Male Fish, or Kipper, during the Spawning-season.

fish,’ being considered unfit for the table, and the killing of them is prohibited by British laws, notwithstanding which, however, multitudes are killed by poachers in some of the rivers, nor do those who eat them either fresh or ‘kippered’ (i.e., dried) seem to suffer from any unwholesomeness. They are called ‘foul fish,’ or more distinctively, ‘spent fish,’ or Kelts; the males are also in Britain



Salmon Ova, and Newly Hatched Fish.

1, egg of salmon, natural size, just taken from the parent fish; 2, the same, with the eyes of the young fish just becoming apparent; this takes place about the thirtieth or thirty-fifth day, according to the temperature: 3, the young fish coiled up in the egg, and just ready to be hatched; 4, the young fish emerging from the shell; 5, the empty egg-shell, showing longitudinal rent made by the young fish; 6, young salmon about two days old, natural size; 7, the young salmon (about two days old), magnified; the umbilical vesicle, containing the yolk and the oil globules, and blood vessels ramified on its surface; also the head, with the huge eyes and badly-developed mouth (a portrait); the fins and the thin transparent body, the fins not as yet being developed into their proper shape, are carefully delineated.

called *Kippers*, *kip* being a name for the cartilaginous hook of the under jaw, and the females *Shedders* or *Baggits*.

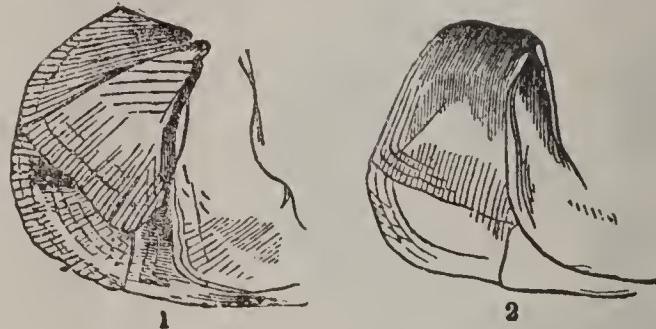
S. spawn on beds of fine gravel, in shallow parts of

## SALMON.

rivers, such as are used for the same purpose by trout. The spawning female approaches the bed, attended by at least one male fish, sometimes by more than one, in which case fierce combats ensue; she makes a furrow in the gravel with her tail, and deposits her spawn in it, on which the male afterward pours the vivifying milt. The eggs, when deposited and vivified, are covered by the action of the tail of the female; the male doing nothing but depositing his milt, and fighting with any other of his sex that may dispute his place.

After spawning, the S. generally soon descends to the sea. The descending *kelts* are very ravenous, and therefore a great annoyance to anglers who desire to take none but *clean* fish, and must return the kelts to the water.

In 30 to 60 days after deposit of the eggs in the spawning bed, they show signs of life, and the eyes appear as small specks. The time which elapses before the egg is hatched varies according to the temperature of the water. A temperature above 70° F. is fatal to them. The length, at first, is about five-eighths of an inch. About the seventh or eighth week, the



Gill-covers of Salmon (1), and Salmon Trout (2).

young S. has changed into a well-formed little fish about an inch long, with forked tail, the color light brown, with nine or ten transverse dusky bars, more or less distinctly visible in the young also of other species of this genus, just as the young of many feline animals exhibit stripes or spots which disappear in their mature state. The fry, previously very inactive, now begin to swim about, and seek food with great activity, and are known as PARR or SAMLET. The Parr was formerly supposed to be a distinct species (*S. salmulus*). To prove this, it was urged that the male parr is very often found with the milt perfect, to which, however, it was replied that the female parr is almost never found with perfect roe. But the remarkable fact has now been abundantly proved, that the male parr is capable of impregnating the roe of the female S., and thus a provision seems made in nature to prevent an otherwise possible loss of roe.



Gill-covers of Bull Trout.

## SALMON.

The parr attains a size of  $3\frac{1}{2}$  to 8 inches. When the time of its migration comes, usually, in Europe, in May or June, it assumes brilliant silvery hues, the fins also becoming darker, and is then known as a *Smolt*. Groups of smolts, 40 to 70 in a group, now descend, not very rapidly, to the sea. They remain for a short time in brackish water, and then depart from the estuary. Of their life in the sea nothing is known, except that they increase in size with wonderful rapidity; for it has been found that smolts which had been marked returned to the same river in six or eight weeks as *Grilse* of 3 to 5 lbs., or, after a longer period, even of 8 or 9 lbs. Some reascend the rivers when of only a lb. and a half or 2 lbs. weight, and these are in some places known as *Salmon-peel*. *Grilse* are captured in great numbers in the latter part of summer and in autumn, but very few are seen in the earlier part of the fishing season. The grilse usually spawns on its first return to the fresh water—often remaining there for the winter, and on again descending to the sea assumes the perfect characters of the mature salmon. Little increase of size ever takes place in fresh water; but the growth of the S. in the sea is marvellously rapid, not only on its first migration, but afterward.

The S. fisheries of many of the rivers have much decreased in productiveness during the 19th c. The stake net is the most deadly of all means employed for taking S.; and in Britain its use is prohibited in estuaries and on some other parts of the coast. It consists of two rows of net-covered stakes so placed between high and low water marks that S. coming up to them, and proceeding along them, are conducted through a narrow opening into what is called the *court* of the net, from which they cannot find the way of escape. The *cruive*, now illegal in all parts of Britain, is an inclosed space formed in the wall of a dam or weir, into which the S. enter as they ascend the stream, while a peculiar grating prevents their return. The nets for catching S. in rivers and estuaries are of many different kinds. In many places a small boat, or *salmon coble*, is used to carry out a seine net from the shore, setting (*shooting*) it with a circular sweep, the concavity of which is toward the stream or tide, and men stationed on shore pull ropes so as to bring it in by both ends at once with whatever it may have inclosed. Coracles (small boats of basket-work or a light wooden frame covered with canvas and tar, or other waterproof material) are used in S. fishing in the Severn and other Welsh rivers. Nets which a single man can carry and work are also used in many rivers and estuaries, as those called *halves* on the Solway, which may be described as a bag attached to a pole. Dogs have sometimes been trained to drive S. into nets, and some dogs have attained great expertness in catching S. without any assistance.

**NORTH AMERICAN SALMON.**—As late as 1873, Dr.

## SALMON.

Suckley's *Monograph of the Genus Salmo* enumerated 43 species of the S. tribe in N. America, including trout. Recent investigations of the U. S. Fish Commission have reduced the number to 18, as studied by Profs. Gill and Jordan. The old genus has been divided into groups. 'The first, for which the name *Salmo* is retained, includes the Atlantic S. and the black-spotted species of the west; the Rainbow Trout of the Pacific slope (*S. irideus*); the Rio Grande Trout (*S. spilurus*), with two closely-related forms, more widely distributed through the Rocky Mt. region; also, the Steel-head of the Columbia (*S. Gairdneri*); and the common Black-spotted Trout (*S. Clarkii*) of the upper Missouri, Utah, the Columbia river, and other localities.' The second group includes the Charrs, or Red-spotted Trout, and the gray-spotted Salmon Trout or Lake Trout, all referred to the genus *Salvelinus*. That which is called simply the S. (*S. salar*) occurs in the n. Atlantic and its bays, gulfs, and rivers, in both America and Europe—in this country ascending as far as Niagara, and ranging along the coast and its rivers down to latitude 41°. Formerly abundant in the Connecticut river, the S. was nearly exterminated about the beginning of the 19th c. by the erection of dams, which prevented the fish from reaching their spawning grounds. They descend to the sea for more abundant food; but in the lakes they find enough, and there have varied slightly in coloration, and are designated as a variety, *S. salar sebago*, popularly known in different regions as Land-locked or Fresh-water S., with such local names in Canada as Winninish, Grayling, Schoodic or Sebago Trout, Dwarf S., etc. According to latitude and warmth of season, S. ascend our rivers from April to July; but some are resident through the winter. At the spawning season, Oct. to Dec., their handsome form and colors disappear, the skin becoming slimy and blotched with color, and the male jaw curving into a large hook used in fighting rivals; in this stage, returning to the sea, they are known as Kelts. The great run up-stream of young S., called Grilse, is not observed in the United States, where they do not appear until adult. The common adult size is 30 in., weight 10 lbs., but at Gaspé one is reported nearly 4 ft. long, weighing 47 lbs. In the great lakes, the refuse of factories, as well as the river-dams, have spoiled the S. fishery.

*Salmon on the Pacific Coast.*—Of the S. of the Pacific, the Steel-head (*S. Gairdneri*), 16–22 lbs., is known also as Hard-head, Salmon Trout, and by Indians of the upper Columbia as Humaana. It ranges from Kamtchatka to Monterey, always close to the coast, and is abundant in the spring in the Fraser and Columbia rivers, but not found e. of the Cascade Mts. It is in poor condition in the spring, when ascending, and little use is made of it.—The Rainbow Trout (*S. irideus*) 3–5 lbs., of the Cal. mountain streams, and as far s. on the coast as the San Luis Rey river, known as

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Brook, Mountain, Speckled, or Golden Trout, is not much marketed, but is a good table-fish, and has been introduced into many eastern waters.—The Black-spotted Trout (*S. purpuratus*) attaining 2–3 ft. and 30 lbs., is known by many names, e.g., Spotted, Black, or Silver Trout, and abounds in almost every stream and lake of the Rocky Mt. region. In deep shady lakes, it is almost black; in other situations pale, while in the sea it is silvery and but faintly spotted.—The Rio Grande Trout (*S. spilurus*) is very large, and the best food-fish in N. Mex. and w. Colo.—The Dog S. (*Oncorhynchus keta*), 10–12 lbs., is found from Sacramento to Behring Strait, where it is also very abundant.—The Hump-backed S. (*O. gorbuscha*), 4–10 lbs., Sacramento to Alaska, is inferior, though canned on Puget Sound.—The Silver S. (*O. kisutch*), called also White S., 7–20 lbs., has similar range.—The Blue-back S. (*O. nerka*) called Red-fish, 8–15 lbs., from the Columbia river n., is much used for canning, but is not so excellent as the Quinnat or California S. (*O. chouicha*) 16–90 lbs., called also the Columbia or Chinook, or King S., ranging from Monterey to Alaska and Asia. It is the great fish for canning, and, 1878–84, 200,000,000 lbs. were harvested on the Columbia river, without any apparent decrease of numbers. It resembles the *S. salar* of the Atlantic in quality, likewise in color, except that it has star-like spots of black on its back and sides. These fish are in their prime from March to July, after which they deteriorate, and, a month or two later, die after spawning in the shallow upper waters. Multitudes of living embryos have been sent to Europe and even Australia by the Fish Commission.

In regard to the great number of S. in the rivers of the northwest, J. K. Lord, in his work, *The Naturalist in Vancouver Island* (1866), says: ‘At Fort Hope, on the Fraser River, in the month of September, I was going trout-fishing in a beautiful stream, the Qua-que-alla, that comes thundering and dancing down the Cascade Mountains, cold and clear as crystal; these salmon were then toiling up in thousands, and were so thick in the ford that I had great trouble to ride my horse through: the salmon were in such numbers about his legs as to impede his progress, and frightened him so that he plunged viciously, and very nearly had me off.’

The Indians of these regions take the salmon, as they ascend the rivers, by various contrivances. They construct weirs reaching from one side of a stream to the other, with openings through which the fish pass into large lateral prisons of closely woven wicker. They use nets in the bays and harbors, when the salmon, pursuing anchovies and herrings, run into the net, and are caught in immense numbers. They construct rude scaffolds or stages of wood among the bowlders on the sides of large rivers, on each of which many Indian fishers await the salmon, with small nets fastened to handles 40 or 50 ft. long. Thirty salmon an hour is not an unusual take for

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two Indians to land on a stage. Another and more curious method, practiced at falls, is by means of great wicker hampers, about 30 ft. in circumference, and 12 ft. in depth, which are fastened to the smaller ends of huge trees placed so as to overhang the foaming water, and where the salmon generally leap: in each basket two naked Indians are stationed to catch and kill the fish that fall into the baskets. Salmon in the region above indicated are put up for export in tin cans; this industry is on a great scale—employing hundreds of vessels and thousands of persons.—See PISCICULTURE.

**ANGLING FOR SALMON.**—The capture of the S. by rod and line affords the most exciting sport of the kind. The pleasures of it have been descanted on by numerous writers, and whole treatises have been written on the minutiae of the art. Among more modern writers on the subject are Davy, Stoddart, Colquhoun, Younger, Stewart, Francis, and Russell. For the tackle used, see ANGLING; and the general principles of fly-fishing there laid down are applicable in this case. The chief specialty in S. angling is to be able to maintain perfect coolness and vigilance when the fish is hooked. The rod must be kept at such an elevation as to bring its elasticity into play; and by allowing the line to run out as the fish dashes off, and winding it up as he returns, or by following his motions, if need be, in person, a constant and equal strain must be maintained; a sudden tug at an unyielding line, or a momentary slackening, being equally fatal. After struggling for from a quarter to half an hour (sometimes, though rarely, two or three hours) against a steady pull, the fish generally yields to his fate and allows himself to be drawn into the shallow and landed. This is done with the gaff; or else the fisher, winding his line up within rod length and holding the top landward, without slackening, seizes the fish with one hand by the root of the tail, and lifts, or rather slides him head-foremost on to the gravel or grass.

Recently the S. and other fish of British rivers have suffered greatly from a disease of which a cause or consequence is a fungus, *Saprolegnia ferax*. See an article by Prof. Huxley in *Nature*, XXV.

**SALMON-FISHERY LAWS.**—The S. fishery in Great Britain and Ireland is under peculiar and elaborate legal protection. In England, the right to fish S. in the sea and navigable rivers belongs to the public as a general rule; and the right to fish S. in rivers not navigable belongs to the riparian owner on each bank, the right of each extending to the centre line of the stream. The exceptions to this rule are certain ancient exclusive fisheries under grants from the crown. No person is now entitled to use lights, spears, gaffs, strokehalls, snatches, or like instruments for catching S.; nor can fish roe be used for the purpose of fishing. All nets used for fishing S. must have a mesh not less than two inches in extension from knot to knot, or eight inches

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measured round each mesh when wet. No new fixed engine of any description is to be used. There must be free gaps in fishing weirs. The close time, during which no S. shall be fished, is Sep. 1—Feb. 1; except that for rod fishing the close season begins Nov. 1. Moreover, no person can, except with rod and line, lawfully fish S. between Saturday 12 (noon) and Monday 6 A.M. See also POACHING.—In Scotland the general rule is that all S. fisheries in the rivers and surrounding seas are vested in the crown; hence no person is entitled to fish with nets or engines unless he can show a grant or charter from the crown. Moreover, while this right to catch S. by nets is vested in the crown, or in some grantee of the crown, the right to angle for S. is now held to be included, and does not belong to the riparian owner; the public, *qua* public, have no right anywhere in Scotland to fish for S. either with net or rod. In Scotland the annual close time for S. fishing is fixed by the commissioners, and varies in each district, but it generally extends from Aug. 27 to Feb. 10; the angler's close time commencing about Oct. 16. There is a weekly close time from Saturday 6 P.M. to Monday 6 A.M. In Ireland, there is an annual and weekly close time, and fixed engines are prohibited, and free gaps enforced in all fishing weirs.

SALMONIDÆ, *säl-mōn'ī-dē*: very large and important family of malacopterous fishes, of sub-order *Abdominales* (having the ventral fins on the abdomen, and behind the pectorals), nearly allied to the *Clupeidæ* (the Herring family), but at once distinguished by the second dorsal fin, which they all have, and which is merely a fold of the skin, inclosing fat, whence it is called the *adipose fin*, and destitute of rays. They all were included by Linnæus in the genus *Salmo*, though now divided not only into numerous genera, but by many naturalists into several families. Some are sea-fishes, never entering rivers, though, like the herring, pilchard, etc., they approach the shore to spawn; others are generally inhabitants of the sea, but ascend rivers to spawn, and some also on other occasions not yet well understood; others, again, are constant inhabitants of fresh-water lakes, or of rivers and streams. Most of them are esteemed for the table, and some are among the most esteemed of fishes.

The restricted S. of those naturalists who divide the family, all are scaly fishes, but with the head destitute of scales, and the cheeks fleshy; the upper part of the mouth is formed by the premaxillary and maxillary bones together; the branchiostegal rays are numerous; the air-bladder is large and simple; the teeth are usually small, sometimes very numerous, the tongue being furnished with them, as well as the other parts of the mouth, though others have the teeth few and small, or even have no teeth. They are generally voracious, feeding chiefly on other fishes, crustaceans, worms, etc.

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The Salmon, Salmon Trout, Trout, Charr, Grayling are familiar examples of the world, some of them, from their herring-like appearance, known as *Herring-salmon* and *Fresh-water Herring*. The Capelin (q.v.) is a sea-fish, never entering fresh waters. The restricted or true S. are found only in the n. parts of the world, chiefly in the colder regions.

The *Characinidæ* also have the body scaly, and the head destitute of scales; the upper part of the mouth is formed by the premaxillaries and maxillaries together; there are only four or five branchiostegal rays; the air-bladder is divided by a constriction in the middle; the teeth are very various, wholly wanting in a few, numerous in most of the genera, present on the tongue in some, and not in others; small and feeble in some, in others large and strong; in many conical and sharp, in some flat. Most of the species feed on animal food, but a few on vegetable food alone; while some are omnivorous, eating with equal readiness worms or other soft animals, and fruits which fall into the water. One of those feeding exclusively on vegetable substances is the Pacu (*Myletes Pacu*), a fish scarcely excelled by any as food, which has teeth like the molar teeth of sheep, and employs them in browsing on the plants that grow on rocks covered with water, near the cataracts of the rivers of Guiana, and in some tributaries of the Amazon. In form it is very unlike the trout or salmon, being short, thick, and clumsy. This, however, is not frequent in the *Characinidæ*, which have much greater variety of form than the S. proper. Thus, in some of the genus *Serrasalmo* (see PIRAYA), of which there are many species, voracious carnivorous fishes with sharp trenchant teeth, the depth of the body is almost as great as its length. The species of *Serrasalmo* are sometimes called *Saw-bellied Salmon*, from their keeled and serrated belly. The *Characinidæ* all are inhabitants of fresh waters; some African, but the greater number S. American. Their flesh is generally much esteemed.

The *Scopelidæ* differ from both the previous sections of S. in the structure of the mouth, which is formed entirely of the premaxillary bone, the maxillary lying behind. Few have an air-bladder. Some are scaly, and some destitute of scales. The form of the body is salmon-like in some, but deep and compressed in others. They are generally marine, as the Argentine (q.v.). They abound chiefly in the warmer seas; the Mediterranean produces some; but the greater number belong to the Chinese and E. Indian seas. Some are in high repute for fine flavor.

Australia produces none of the Salmonidæ. The rivers and streams of that region, however, as well as of New Zealand, Patagonia, and the Falkland Islands, produce a number of species of *Galaxias*, a genus of very trout-like form, but with no scales and no adipose fin. They are called *trouts* by the colonists in Australia and New Zealand, but are inferior for the table.

## SALM-SALM—SALON.

**SALM-SALM**, *sâlm'sâlm*, FELIX, Prince: 1828, Dec. 28—1870, Aug. 18; b. Austria. During the civil war in the United States he was in the Union army, acting as col., and afterward, with the rank of brig.gen., he had command of a post at Atlanta, Ga. Subsequently he was aide-de-camp to Prince Maximilian in the invasion of Mexico, taken prisoner, and released; his wife (formerly Miss Le Clercq, of New York) having made notable exertions to save Maximilian. Returning to Europe, Prince Salm-Salm was maj. of Prussian royal guards in the Franco-Prussian war, and was killed in the battle of Gravelotte. See *Ten Years of My Life* (1875) by the Princess Salm-Salm.

**SALOMON**, *sâ'lo-mon*, JOHANN PETER: musician, violin player, and composer: 1745–1815; b. Bonn. When young, he was attached to the service of Prince Henry of Prussia, for whom he composed several operas. In 1781, he visited Paris, and afterward London, where his reception was so cordial that he settled there. His series of subscription concerts in London, 1790, form an era in the history of music, as they led to the production of Haydn's 12 grandest symphonies, known as the Salomon set. In 1800 S. retired from public life. He was interred in Westminster Abbey.

**SALON**, *sâ-tawng'* [F. *salon* (see SALOON)]: drawing-room; saloon; exhibition of the fine arts in large apartments; gallery of paintings, etc., of living artists. The *salon* was, socially and distinctively, the habitual and informal gathering of intimates of a select sort, for conversation, at the houses of socially prominent persons in Paris, in the last three centuries. The only known example in ancient times, the resorting of distinguished Greeks to the house of Aspasia for social reunions, was a type of the modern S., save that only exceptionally has the mistress of the mansion been notorious. In most salons the hostess has been the wife of the proprietor of the house, and, like Aspasia, of marked gifts and graces, attracting men of intelligence and position, and reigning within her circle as a queen. In the 16th c. the S. had become an established institution, dating especially from literary Marguerite d'Ecosse and Marguerite of Navarre, and the celebrated beauty Madame Paulet, in the time of Henry IV. of France. In the 17th c. the S. began to exert a powerful influence on public affairs. Sometimes, it became a philosophical reunion, as that of the Princess of Robecq, where Palissot conceived his comedy of *The Philosophers*; in other instances, a company of religious devotees, as that of the Countess of La Marck. The S. of Madame de Grammont was the first verily political. In the 18th c. there were financial salons, as those of Samuel Bernard and John Law, both in Paris, and, 1789, that of the wife of the banker-minister Necker; of the same epoch, that of Madame de Genlis was noted. The Club grew out of overflowing salons, which it began to dethrone about

## SALON—SALONA.

1790. Madame de Staël's S. was one of the disturbers of Bonaparte. At the Restoration, the wife of the painter Lebrun had a S. of legitimists, with music as an attraction; and, toward the middle of this c., an example was the literary S. of Madame de Girardin. After the revolution of 1848, reunions were few and political; now they are only official or merely social. '*Les salons sont morts.*' In the United States there have been a few short-lived literary salons, as those of Rufus W. Griswold and Miss Lynch (afterward Madame Botta) of New York, and Mrs. James T. Fields of Boston. To flourish, the S. needs the lost art of conversation, especially as it was cultivated in France.

SALON' DES BEAUX ARTS (familiarly THE PARIS SALON): exhibition of paintings, sculptures, etc., by the Paris Acad. Louis XIV., advised by Colbert, requested the members of the Acad. to institute an annual exhibition, which, however, Colbert changed to biennial, the first exposition opening 1667, and followed by biennial exhibitions until the first republic, when the S. occurred every year, but became biennial again under the empire. Under Louis XV. the S. was held in the Louvre, and assumed its present name. In 1737 there were 286 works by 69 artists, of whom 10 were sculptors and 8 engravers. The numbers increased until in 1765, when there were 432 works, then diminished until 1791. Only academicians and professors had right to exhibit. The Revolution destroyed this exclusiveness; and half the jury of selection were drawn by lot. In 1785 the custom began of re-arranging paintings, after the time of exhibition had half expired, to give the poorly-lighted a better position. In 1804, there were 701 works by 315 artists; in 1812, 1,299 by 557. On the re-entry of the Bourbons, the command was given to replace tricolor cockades with white in battle pictures of the empire; but the artists refused. In 1824, there were 2,371 works by 790 artists; and lithographs were then first admitted. The revolution of 1848 swept away the juries that had proscribed the works of Rousseau, Diaz, Corot, etc.; 5,180 works were admitted, without selection, and committees were elected by universal suffrage of artists. After the *coup d'état* of 1852, some of the jury were artists formerly rejected, and some were appointed by the administration—three-fourths after 1863, when the exhibitions became annual. After 1872, no pictures were exempt from liability of rejection, and the jury was elected by those who had won the grand prize of Rome; but in 1874 the exemption and mode of election were restored. In 1875, 3,862 works were exhibited.

SALO'NA: see SPALATO.

## SALONICA—SALOP.

SALONICA, *sâ-lô-nê'kê*, or SALONIKI, *sâ-lô-nê'kê* (anc. *Thessalonica*, Turk. *Selanik*): town of European Turkey, in the vilayet of S., and, next to Constantinople, the greatest emporium of commerce in the empire; on the Gulf of Saloniki, and rising from the shore along the face of a hill. The city is inclosed by white walls, partly ancient and partly mediæval, about five m. in circuit; and is surrounded by cypresses and other evergreens. From the sea, it presents a bright and beautiful appearance: but its internal aspect is miserable. The principal buildings are mosques, most of which were previously Christian churches. The *Citadel*, called by the Turks *Vedi-Kuleh*, or ‘the Seven Towers,’ is the ancient Acropolis; within it are to be seen the ruins of a triumphal arch belonging to the time of Marcus Aurelius. Other relics of antiquity are the Propylæum of the Hippodrome, a magnificent Corinthian colonnade of five pillars; the triumphal arch of Augustus, erected after the battle of Philippi (now forming the gate of Vardar or Vardari); the arch of Constantine, etc. S. exports the corn, cotton, wool, tobacco, beeswax, and silk of Macedonia, and is connected by railway with Uskub, nearly 100 m. inland. A new enterprise of German and Austrian origin is the Turko-Servian railway, connecting Berlin and Vienna with S. on the Ægean Sea. The exports have annual value of about \$12,500,000; imports of about \$6,250,000.—Pop., Turks, Greeks, and Jews, estimated (1890) 121,600.

S. was at first called Therma, under which designation it is mentioned in connection with the march of Xerxes through Greece. It was rebuilt by Cassander about B.C. 315, who probably named it Thessalonica in honor of his wife; and during the Roman-Macedonian wars, it figures as the principal station of the Macedonian fleet. After the civil wars, its prosperity rapidly increased, and for three centuries it was the first city in Greece. It was early the seat of a Christian church. During the barbarian invasions, it proved the great bulwark of the Eastern empire. It was thrice taken in the middle ages—by the Saracens 904; by the Sicilian Normans 1185; and by the Turks under Amurath II. 1430.

SALOON, n. *sa-lôn'* [F. *salon*, a large hall—from *salle*; It. *sala*, a hall: Icel. *salr*; Ger. *saal*; AS. *sele*, a hall]: great hall or state-room, in a house, vessel, etc.; spacious apartment for reception of company (see SALON); in the *United States*, a place where liquors are sold and drunk.

SALOOP, n. *sa-lôp'*, or SALOP, n. *sâl'üp*: decoction of salep sweetened: see SALEP. Also, root-beer flavored with Sassafras (q.v.), formerly much sold in streets of London.

SA'LOP: see SHROPSHIRE.

## SALPA—SALSETTE.

**SALPA**, *säl'pa* : genus of *Tunicata* (q. v. : see also **ZOOLOGY**), in which there is no shell, but a leathery tunic with two apertures; type of the family *Salpidæ*, which float in the sea, and have the tunic transparent and elongated. They are allied to the *Ascidia* (q. v.), though not fixed like them, and have two openings, through the hinder of which the water enters, and is expelled through the anterior by a regular contraction of the mantle, so that the animal is impelled backward through the water without apparent voluntary action. The *Salpæ* are sometimes solitary, and sometimes united in long chains, those in chains having the contractions of the individuals simultaneous; but the solitary *Salpæ* appear to be the parents of those in chains, and these in turn give birth to solitary individuals very different from themselves. The whole texture is very delicate, so that the animal is sometimes scarcely to be discerned, except from its iridescent hues in the sunshine, which make chains of *Salpæ*, when very numerous, a conspicuous feature in the surface of the tropical ocean. The orifices of the alimentary canal are not near together, as in *Ascidia*, but at opposite extremities of the body. The branchial chamber of *Ascidia* is represented by a wide membranous canal, traversed by a long vascular ribbon continually exposed to the water that passes through the canal. The *Salpæ* united in chains have no organic connection, but apparently adhere together by little suckers.

**SALPICON**, n. *säl'pi-kōn* [Sp.—from L. *sal*, salt; Sp. *picar*, to prick] : in *OE.*, a mixture of various meats and vegetables previously cooked, made into small patties with good puff pastry.

**SALPINX**, n. *säl'pingks* [Gr. *salpingx*, a trumpet] : in *anat.*, the Eustachian tube, or channel of communication between the mouth and ear.

**SAL PRUNEL'LA** : see **NITRE** : **SAL**.

**SALSASY**, n. *säl'sa-fī* : see **SALSIFY**.

**SALSES**, n. plu. *säl'sēz* [L. *salsus*, salted, briny—from *sal*, salt: It. *salso*, salt] : eruptions of hot acidulated mud from small orifices, generally in volcanic districts, and often accompanied with the emission of steam and gases at a high temperature, sometimes inflammable.

**SALSETTE**, *säl-sët'*, Port. *säl-sët'tā* (native name *Sáshti*) : island on the w. coast of Brit. India, in the presidency of Bombay; immediately n. of Bombay, with which it is connected by a long peninsula, and by an artificial embankment called Zion's Causeway. It is 18 m. long, and 11 m. in extreme breadth; 241 sq. m. It is beautiful, picturesque, and densely wooded, is diversified by mountain and hill, and contains many fertile tracts. Sugar, indigo, cotton, flax, and hemp are grown. Thanah, the chief town (pop. about 12,000), is on the e. coast, 20 m. n.n.w. of Bombay by the Great Indian Peninsula railway, which, after traversing the islands of Bombay and S., crosses to the continent half a mile s.

## SALSIFY—SALSOLA.

of this town. Nearly a hundred remarkable caves, the Caves of Káñhari or Kenery, are in the middle of the island, five m. w. of Thanah. They all are excavated in the face of a single hill, and contain elaborate carving. The caves are in six stories, on the ledges of the mountain; and the stories are connected by stairs cut in the rock. The cave first approached consists of three chambers, one unfinished, and dates from the 9th or 10th c.; it contains no figures or carvings. The other caves contain numerous carved representations of Buddha, many of colossal size. Relics and inscriptions are found. There are caves in several other localities of the island—e.g., those of Montpezir, Magatani, and Jageshwar. The caves are frequently the haunts of serpents and tigers. On the n., on the coast, is the small watering-place Ghorá Bandar, which has been termed the Montpellier of Bombay. The fort of Thanah and the island of S. were taken by the English 1774. Pop. of S. (1881) 108,149, of whom about three-fourths were Hindus.

**SALSIFY**, n. *sāl'sī-fī* [F. *salsifis*; Sp. *salsifi*—from It. *sassefrica*, goat's-beard], (*Tragopogon porrifolius*): biennial plant growing in meadows throughout Europe; cultivated in gardens for its root, which is used in the same manner as the carrot, and is delicate and pleasant, with a flavor resembling asparagus or scorzonera. It is also known as the oyster plant. The root is long and tapering, and in cultivation white and fleshy, with much white milky juice; the stem 3–4 ft. high, with smooth and glaucous leaves, which resemble those of the leek; the flowers are of dull purple color. The seed is sown early in spring in rich soil which has been deeply plowed and thoroughly pulverized. Rows should be 1 ft. apart, the plants thinned to 4-in. apart in the rows, and carefully cultivated. It is ready for use late in the fall, but roots not wanted sooner may remain in the ground till spring, and will be improved by frost. Far n. slight winter protection is required. If allowed to grow the second year the roots will be worthless, but the flower-stalks can be used like asparagus. Until recently S. has been grown but little in the United States, but its cultivation in the vicinity of large cities is rapidly increasing. The seed of four varieties was offered by dealers 1889.—The genus *Tragopogon* belongs to the nat. order *Compositæ*, sub-order *Cichoraceæ*, and is distinguished by one row of 8–10 bracts united at the base, a punctured receptacle, feathery pappus, and striated achenia with long beak.—The **PURPLE GOAT'S BEARD** (*T. pratensis*), was formerly cultivated in England for its roots, similar in quality to salsify.

**SAL-SODA**, n. *sāl-sō'da* [L. *sal*, salt, and Eng. *soda*]: in Amer., a commercial name for carbonate of soda.

**SALSOLA**, n. *sāl'sō-la* [L. *salsus*, salted, salt]: a genus of plants found chiefly on the sea-shore, yielding **kelp** and **barilla**, ord. *Chenopodiacæ*; salt-wort.

## SALSUGINOSE—SALT.

SALSUGINOSE, a. *säl-sū'jī-nōs*: in *bot.*, growing in places overflowed by salt water.

SALT, n. *sawlt* [L. *sal*; Dan. and Sw. *salt*; Gael. *salann*, salt: W. *halen*, salt; *halla*, salted: Gr. *hals*, salt, the sea]: a common culinary substance obtained from sea-water, salt-springs, and from mines; in *chem.*, called chloride of sodium or sodic chloride (see SALT, MANUFACTURE OF): term applied to a combination of an acid with an alkaline base (see SALTS, THEORY OF): that which preserves from corruption; *figuratively*, wit; piquancy; *familiarly*, a sailor, as an *old salt*: ADJ. having the taste of salt; impregnated with salt; in *OE.*, lecherous; lustful; libidinous; V. to season, sprinkle, or impregnate with salt. SALT'ING, imp.: N. the act of impregnating with salt (see below). SALT'ED, pp. SALT'ER, n. -ēr, one who salts; a salt-seller; a dry-salter. SALT'ERN, n. -ērn, salt-works; a salting-tub. SALT'LESS, a. -lēs, without salt; insipid. SALT'ISH, a. -ish, a little salt. SALT'ISHLY, ad. -li. SALT'ISHNESS, n. -nēs, a moderate degree of saltiness. SALT'LY, ad. -li. SALT'NESS, n. -nēs; the quality of being salt; taste of salt. SALTS, n. plu. *familiarly*, Epsom salts. SALT-CAKE, impure sulphate of soda, formed from oil of vitriol and common salt, in the preparation of carbonate of soda. SALT-CELLAR, n. -sē'lēr, or -SALER, n. -sā'lēr [F. *salière*, a salt-cellar—*-celler* or *-saler* being a corruption of F. *salière*]: a vessel for holding salt, formerly of massive silver, and placed in the centre of the table. SALT-JUNK, hard salt beef for use at sea. SALT-MARSH, grass-land subject to be overflowed by sea-water. SALT-MINE, a place from which rock salt is dug. SALT-PAN, the vessel in which salt is made from salt water. SALT-WATER, sea-water, as opposed to spring or river water; water impregnated with salt. SALT OF LEMONS, binoxalate or acid oxalate of potash. SALT OF SORREL: same as SALT OF LEMONS; common name for binoxalate of potash (see OXALIC ACID). SALT OF TARTAR, commercial name for very crude carbonate of potash. SALT OF VITRIOL, sulphate of zinc. SALT OF WORMWOOD, carbonate of potash. To SALT AN INVOICE or ACCOUNT, to charge extreme prices for the articles in it. To SIT ABOVE THE SALT, *formerly*, to sit in the place of honor—the salt-cellar being placed in the middle of the table, the favored guests sat above it, and the inferior below it.

SALT, MANUFACTURE OF: the obtaining and preparation of sodium chloride in desirable form: see SODIUM. Common salt is procured either in the solid crystalline state, called *Rock-salt* (q.v.), or as a natural brine from wells or springs, or by evaporation of sea-water. Rock-salt is obtained by mining, often at great depths, as at Norwich in Cheshire, England; at Salzburg, Magdeburg, Berchtesgaden, and Wimpfen in Germany; Cracow in Poland; in various places in the United States; in the Punjab and other parts of the world. Rock-salt almost

## SALT.

always contains impurities, and therefore is dissolved in water, and the insoluble matters mixed with it are deposited at the bottom. The brine is then drawn off, and evaporated by artificial heat in large iron pans.

Natural brine is obtained by sinking shafts in which the brine rises to the surface, and overflows if not pumped. Having been pumped into reservoirs, it is distributed to the various works, which are little more than large sheds with numerous openings in their roofs to allow the steam free egress. Flues run from end to end of the floors, and on these rest the iron evaporating-pans. The flues heat the brine nearly to boiling-point, and as a large surface is exposed, the evaporation is very rapid, and the crystals are small, as in the fine table-salt. If, however, the heat is more gentle, the salt is coarser, and is fit for curing meat, fish, etc.; and when very slow, a much coarser kind, *bay-salt*, is produced. Salt is obtained from sea-water in many parts of the world, and this is effected by simply evaporating it in brine-pits or shallow square pools dug on the shore for the purpose. When the evaporation has proceeded to a certain extent, the liquid assumes a reddish color; a pellicle of salt forms on its surface, which soon breaks, and sinks down, to be followed by another; and the crystallization then proceeds rapidly. When complete, the salt is removed to sheds open at the sides, and then piled in heaps in order that the chloride of magnesium may be removed; this is easily done, for as it is extremely deliquescent, it liquefies by exposure to the atmosphere, and runs out. The salt is then redissolved and crystallized, if great fineness is required. In Russia, Sweden, and other northern countries, salt is obtained by freezing sea-water in large reservoirs. As the ice formed is nearly pure, repeated freezings of the surface, and removal of the ice, leaves the mother liquor more and more rich in salt, and it is then boiled down.

In the United States, comparatively little salt is made from sea-water; though at some period nearly every Atlantic state has engaged in the manufacture, and during the revolution, the war of 1812, and at about 1830, the New England states produced large quantities of sea-salt. The salt springs of N. Y. were utilized by the whites 1788, near Syracuse, where the state has reserved the salt-fields, and leased salt-lots since 1797, at a charge of 6 cts. a bush. to 1846, and of one cent since. The production reached (1791) 8,000 bushels; (1797) 25,474; (1807) 165,448; (1817) 448,665; (1827) 983,410; (1837) 2,161,287; (1847) 3,951,351; (1862) 9,053,874; and from this maximum a declining amount, down to less than one-tenth of this. The salt-wells are mainly in the low marshy lands surrounding Onondaga Lake, which has a double bottom of marl 3 to 12 ft. thick, and marly clay under that, preventing the lake water from reaching the brine of the salt-wells, which are 200 to 300 ft. deep. The brines from these wells have yielded a bushel of

## SALT.

dry salt (56 lbs.) for from 30 to 45 gals. of brine. A great decline of production has resulted from competition with Michigan salt, the mining of which costs less; also from the opening of other N. Y. fields. Within the state reservation at Syracuse, test wells fail to find more or stronger brine, while outside of it, about five m. from Syracuse, a bore through shale, 735 ft., and limestone below it, reached, at 1,210 ft., rock-salt, which can be converted into saturated brine, taken by a system of piping to the city, and converted into salt at one-third less cost than brine from the state wells. There is a practically inexhaustible supply in the salt-beds of w. N. Y. They extend about 120 m. e. to w. and 50 m. n. to s.; and show an average thickness of 40 ft. over nearly 5,000 sq. m. The brine from this field has a less than usual proportion of the chlorides of calcium and magnesium, thus reducing the cost of production of pure salt. At Warsaw, Wyoming co., N. Y., the deep bed of rock-salt is quarried, with a large force of men, and many tons of daily output; it is so pure that it can be pulverized for table use. In the w. part of Penn. a salt region on the Allegheny and Beaver rivers began production 1812, and 1829 had extensive works supplying salt at 20 to 25 cts. a bushel, when it sold at 50 cts. in Ky., O., and Ill. The output was 900,000 bushels (1857), and 1,011,800 (1860); but from that it has declined. In W. Va. salt production in the valley of the Great Kanawha, from Charleston to about 20 m. above, had reached (1829) 1,000,000 bushels, and (1870) 4,633,000; but later this fell off very much. In the region of s.w. Va., along the n. fork of the Holston river, occur both salt-springs and rock-salt. From 1798 the old Scioto salt-wells in O. yielded an inferior salt. With wells at Pomeroy 1,200 ft. deep, strong brine raised the production to (1850) 550,350 bushels, and (1873) 4,154,187 bushels. In Ky., Md., and Ill., there has been some salt production, but not of permanent importance. From 1859, when a state bounty of 10 cts. a bushel was offered, salt production began in Mich., at E. Saginaw, and was rapidly developed, the output reaching (1874) 5,134,875 bushels. The state now, 1891, has 9 districts with a manufacturing capacity of about 6,000,000 bbls., represented by 122 companies, of which 97 were operated during 1890, by means of 99 steam and 7 pan blocks and 4,000 solar salt covers. The amount of salt inspected in Mich. has been (1888) 3,866,228 bbls.; (1889) 3,846,979 bbls.; (1890 to Nov. 30) 3,838,637 bbls. The quantity actually manufactured considerably exceeds this: (1888) 4,243,266 bbls.; (1889) 4,334,889 bbls. The number of wells (1889) was 254, of which 26 were from rock-salt, and 228 from sand-rock. These represented an investment of \$4,700,000, and employed 3,600 men. The average yield of the rock-salt wells was 67,118 bbls. per well, and that of the sand-rock wells 11,358 barrels.

In Reno co., Kansas, borings made 1887 reached, at

## SALT.

about 500 ft. depth, a bed of pure salt 300 to 400 ft. thick, except two or three thin layers of soapstone. For a distance of many miles the field is estimated to have 2,000,000 bbls. of salt to every acre: 13 factories are engaged in production from this bed. Near Cleveland, O., recent borings have opened several thick veins of salt, at 2,500 ft. depth for the first, 50 ft. below that a second, 80 ft. lower a third, and at a depth of 3,400 ft. a vein of so great thickness as to induce closing the well (bored for gas), and establishing mining for salt. In La., on the coast w. of the mouth of the Mississippi river, a cluster of islands known as Petite Anse Isle contains beds of salt said to be the purest in the world—99 per cent. being pure salt. The main bed has a depth of 300 to 400 ft., and mining to a very large extent has been developed, 1889–91. The accidental discovery, 1861, of this deposit, a solid mass of pure salt under a mere drift mass 16 to 18 ft. deep, was of the greatest value to the south in the civil war, during the later years of which the Confederate salt supply was chiefly from this source. The production of salt in the U. S. had become centred by 1870 in the Mich., N. Y., and Ohio areas, with output of nearly 16,000,000 bushels, representing about 200 establishments, while 82 other establishments yielded enough to raise the aggregate to 17,606,000 bushels. Both in N. Y. and in Ohio production has suffered from the fact that in Mich. the brines are much stronger and fuel much cheaper, giving Mich. salt a great advantage; while in Canada a similar advantage is possessed by the salt-producers at Goderich, on Lake Huron, where the output, dating from 1866, rose to several millions of bushels annually. In the Rocky mountain and Pacific coast region local production of salt has been widely attempted or is in prospect, especially in Cal., Utah, Colorado, Idaho, and Nevada. In Lincoln co., Nev., are immense deposits of rock-salt so near the surface that a man can quarry and bring out five tons a day, which is fit for dairy or table use on being ground. These fields need only railway facilities. The production of salt in the United States, 1901, was 20,566,661 barrels.

**SALT, SPIRITS OF:** old name for muriatic or hydro-chloric acid.

**SALT, sawlt, Sir TITUS:** public-spirited English manufacturer: 1803, Sep. 20—1876, Dec. 29; b. Morley. He began business as a wool-spinner at Bradford 1834, and was the first to introduce into England the manufacture of alpaca fabrics. He cherished a strong interest in the welfare of his work-people, and about 1850 established his factory in the healthful valley of the Aire, between Leeds and Bradford. Besides he built the model village SALTAIRE, containing a church, schools, a working-man's club (costing £30,000), baths, etc. The factory covers 12 acres, and there are 1,000 commodious dwellings for the operatives. S. was returned to parlia-

## SALTA—SALTING.

ment 1859, and was made a baronet 1869. His whole career was marked by business enterprise and sagacity, and earnest beneficence. See *Life by Balgarnie* (1877).

SALTA, *sâl'tâ*: town in the n.w. of the Argentine Republic, cap. of a state; 3,900 ft. above sea-level, but unhealthful. Pop. (1881) about 20,000.

SALTANT, a. *sâl'tant* [L. *saltans* or *saltan'tem*, dancing; *salto*, I dance—from *saliré*, to leap]: leaping; jumping; in *her.*, in a leaping position. SALTATION, n. *sâl-tâ'-shûn* [F.—from L. *saltâtiōnem*, a leaping, a dancing]: a leaping or dancing; palpitation. SAL'TATORY, a. *-tér-i* [L. *saltātor*, a dancer]: leaping or dancing. SAL'TATO'RES, n. plu. *-tô'rēz*, those insects which possess great powers of leaping, as the grasshopper, locust, etc.

SALTCOATS, *sawlt'kôts*: seaport on the Firth of Clyde, county of Ayr, Scotland, 30 m. s.s.w. of Glasgow; a great resort of sea-bathers. Pop. (1891) 5,895.

SALTER, *sawl'tér*, WILLIAM D.: naval officer: 1794—1869, Jan. 3; b. New York. He became a midshipman 1809, served on the *Constitution* in the famous battle with the *Guerrière* 1812, and outlived all his comrades in that action. He was at the Brooklyn navy-yard as commander 1856–59, and was a govt. commissioner for examination of vessels 1863–66. He was promoted lieut. 1814, capt. 1839, and commodore on the retired list 1862. He died at Elizabeth, N. J.

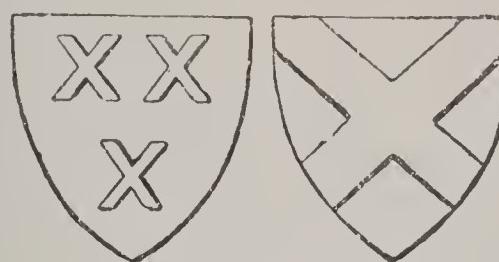
SALTIGRADES, n. plu. *sâl'tî-grâdz* [L. *saltus*, a leap: *gradior*, I walk]: a family of spiders that seize their prey by leaping upon it from a distance. SAL'TIGRADE, a. formed for leaping.

SALTILLO, *sâl-têl'yô*: city of Mexico, cap. of the state of Coahuila. Pop. of S. about 17,000. Seven m. s. is Buena Vista, where 1847 the Mexicans were defeated by the U. S. army.

SALT'ING: process for preserving animal and vegetable substances for food by aid of common salt. This is either done by rubbing dry salt into the flesh to be preserved, and repeating the process from time to time, until it has absorbed sufficient to arrest decomposition; or the salt is liquefied with a little water, and made into strong brine, in which articles are placed until required for use, when a little soaking and washing removes the superfluous salt. Vegetables are salted in the latter way only; and this is done for their preservation for winter consumption. A little saltpetre is often added, greatly increasing the efficiency of the salt. See ANTISEPTIC: FOOD.

## SALTIRE—SALT LAKE CITY.

SALTIRE, or SALTIER, n. *sāl'tēr* [OF. *saultoir*, a stirrup, St. Andrew's cross: F. *sauter*, to mount—from L. *saltārē*, to leap—from *saliō*, I leap]: in heraldry, an ordinary in the form of St. Andrew's cross—that is, the form of an X—a bend sinister conjoined with a bend dexter.



Saltire.

The form of the S. has been assigned to the cross on which St. Andrew is said to have been crucified; hence the frequency of this ordinary in Scotch heraldry. A S. is subject to the variations of being engrailed, invected, etc., and may be *coupé*. Charges disposed in the form of a S. are described as placed *saltireways*, or *in saltire*. The former term is more properly applied to two long charges, as swords or keys, placed across one another.

SALTISH, SALTISHNESS: see under SALT.

SALT LAKE CITY: city, cap. of Salt Lake co., Utah, and of Utah Terr.; lat.  $41^{\circ}$  n., long.  $112^{\circ}$  w.; 4,250 ft. above sea-level, on the brow of a slight decline at the w. base of the Wahsatch range of mountains, and on the right or e. bank of the river Jordan, 12 m. from the entrance of that stream into the s.e. extremity of Great Salt Lake. Its railway connections are by the Utah Central, 36 m. n. to Ogden, on the Union Pacific, the Salt Lake and Port Douglass, and the Rio Grande West railroads, with others projected, particularly the Salt Lake and Los Angeles. A short local railway connects with Camp Douglass, a U. S. milit. post 3 m. away from the city. The city was laid out in the wilderness 1847, July, by Brigham Young and a band of 143 Mormons (q.v.) seeking a refuge remote from interference, where they could establish a church and social system based on polygamy. The city covers 9 sq. m., and has 21 wards, each of which has a Mormon bishop, and almost every one a public square. The streets, including sidewalks 20 ft. wide, are 137 ft. wide, and laid regularly at right angles, with inclosed blocks, 260 in number, and each 40 rods square, 10 acres in area, and divided into eight  $1\frac{1}{4}$ -acre lots, 10 rods wide by 20 deep. On each side of every n. and s. street flows a stream of pure water in an open channel, and with the ample irrigation from these streams shade trees, fruit orchards, and fine gardens are everywhere. The mean winter temperature is  $32^{\circ}$ ; summer  $74^{\circ}$ . Besides the system of irrigation, 30 m. of mains bring mountain water to all parts of the city, and hydrants are numerous, with head suf-

## SALT OF SATURN—SALT OF TIN.

ilcent to force water above the highest buildings. The buildings, with some recent exceptions, are of adobe, or sun-dried brick, most of the dwellings being of one story. The great Mormon temple (begun 1853), 100 ft. by 200 ft. on the ground, built of white granite, at an estimated cost of \$10,000,000, has only lately approached completion. A wall 5 ft. thick and 8 ft. high extends around it, and also around the tithing house, printing-office, and business offices of the church, and the late residence of Brigham Young. The earlier house of Mormon worship, the Tabernacle, accommodating 8,000 to 10,000 persons, is 150 ft. wide, 251 ft. long e. and w., and has as roof an immense oval wooden dome, supported by 46 columns of sandstone, which form the wall, with spaces for doors, windows, etc. The ceiling is 65 ft. above the floor. There are 14 churches other than Mormon; 8 halls for public use; 4 hospitals; 12 lodges of various fraternities; a city-hall, used as the capitol; an opera-house, a theatre, a museum of minerals and curiosities, a pavilion, a land office, a signal-service station, an exposition building, an industrial home; and the Deseret University chartered 1851 and completed 1888. The territorial school system gives one graded school to every ward, and there are other schools, public and private. A deaf mute institution was provided for, 1888, by an appropriation of \$25,000. There are 4 daily and 7 weekly newspapers, 15 hotels, banks with annual deposits of more than \$6,000,000, a board of trade with 200 members, and a well equipped fire department. Garfield and Lake parks are bathing resorts on Great Salt Lake, and there are warm baths and hot springs, much frequented by invalids.

Among the industries of the city are 4 planing-mills, a paper-mill, woolen-mill, 4 flour-mills, 9 foundry and machine shops, a tannery, 4 breweries, 17 miscellaneous manufactories, 3 sampling mills, and 5 smelting works, aggregating 12 stacks. The Zion co-operative mercantile institution, with a paid-up capital of \$1,000,000, manufactures clothing and boots and shoes, besides importing one-third of all merchandise used in Utah. It is owned by Mormons, and has branches in all the Mormon cities and villages. The govt., by a mayor and common council, has represented mainly the Mormon Church authorities. Electric lights have been introduced in addition to gas, and besides 13 m. of horse-car lines, an electric railway was chartered 1888. The later growth of S. L. C. has included a large non-Mormon element; and through U. S. laws, of late effectively enforced, the peculiar Mormon character of religious, social, and educational influences has been greatly modified. Pop. (1850) 5,000; (1860) 8,230; (1870) 12,813; (1880) 20,768; (1890) 44,843; (1900) 53,531.

**SALT OF SATURN**: name for acetate of lead.

**SALT OF TIN**: in dyeing and calico-printing, proto-chloride of tin; used as a mordant, and for deoxidizing indigo and the peroxides of iron and manganese.

## SALTONSTAL—SALTS.

SALTONSTAL, *sawl'ton-stawl*, GURDON: Congregational pastor, gov. of Conn., and originator of the ‘Saybrook Platform’: 1666, March 27—1724, Sep. 20; b. Haverhill, Mass. He graduated at Harvard 1684, was pastor at New London, Conn., 1691–1707, in the latter year having been chosen gov. of the colony, on the death of his parishioner, Gov. Fitz-John Winthrop, during whose illness he had acted as representative of the office. The Saybrook convention was suggested by him, and the platform in part shaped by him. He was active in raising troops for the conquest of Canada; in establishing the first printing press in the colony; and in removing Yale College to New Haven. By re-elections he continued gov. till his death, at New London. His grandfather, Sir Richard S., was one of the original patentees of Mass. and Conn., but returned to England, where he did much in behalf of the colonies.

SALTONSTAL, LEVERETT, LL.D.: lawyer: 1783, June 13—1845, May 8; b. Haverhill, Mass.; son of Dr. Nathaniel S. He graduated from Harvard College 1802, and after studying law commenced practice in Salem, Mass., 1805. He was several times elected member of the state legislature, was speaker of the lower house and pres. of the senate, was the first mayor of the city of Salem, was presidential elector 1837, and member of congress 1838–43. He was a member of various learned societies. By his will he provided for increasing the Harvard College library, and gave most of his own books to the Phillips Exeter Academy. He published *Historical Sketch of Haverhill*. He died at Salem.

SALTPETRE, n. *sawlt-pē'tér* [L. *sal petræ*, the salt of rock—from *sal*, salt; *petra*, a rock or stone: Ger. *salpeter*: F. *salpêtre*]: nitre, a salt formed by combination of nitric acid with potassa: see NITRE.

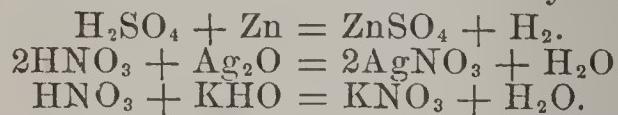
SALT RANGE, or KALABAGH MOUNTAINS, *kā-lā-bāg'*: mountain range in the Punjab, India; lat.  $32^{\circ} 30'$ — $33^{\circ} 20'$ . The range rises on the w. bank of the Jhelum, runs w. to the Indus, and after affording passage for the river, reappears on its w. side, and pursues the same direction till it meets the Suleiman Mountains. The S. R. is about 200 m. in length, and 2,000 to 5,000 ft. high. Its appearance is exceedingly bleak and barren; vegetation is rare; there are no trees; and the frequent bold and bare precipices give it a forbidding aspect. Rock-salt is found in inexhaustible quantities, and so pure that after being pounded it is ready for use. Alum, iron ore, coal, gypsum, and limestone abound; graphite is found, and gold-dust is washed down in the rivers.

SALTS, SMELLING: preparation of carbonate of ammonia with some of the sweet-scented volatile oils, used as a restorative for faintness. The pungency of the ammonia is all that is useful; the oils merely make it more agreeable. Oils of lavender, lemon, cloves, and bergamot are chiefly used. The Preston smelling-salts are scented with oil of cloves and pimento.

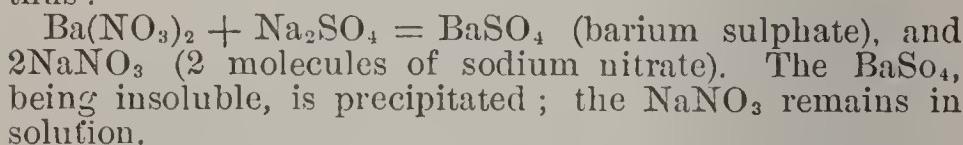
## SALTS.

**SALTS, THEORY OF :** explanation of the mode in which are formed and decomposed compounds produced by combination of an acid with a base. Acid and alkaline (or basic) oxides are capable of uniting with each other in definite proportions and forming salts. The most characteristic of the acid oxides are those of certain non-metallic bodies, e.g., nitrogen, sulphur, phosphorus, which unite readily with water (or the elements of water), forming *oxygen acids*, distinguished by sour taste, solubility in water, and reddening of vegetal blue colors. On the contrary, the most characteristic of the basic oxides are those of the alkali metals and alkaline-earth metals; these too dissolve in water, but they form alkaline solutions that possess in a high degree the power of *neutralizing* oxygen acids and of forming S. with them.

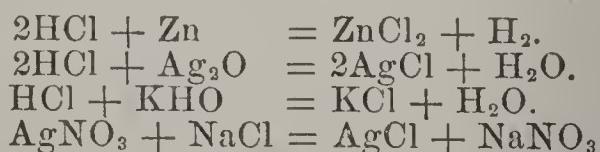
In some cases salts are formed by direct combination of an acid oxide (or oxygen acid) and a basic oxide: thus, when vapor of sulphuric oxide,  $\text{SO}_3$ , is passed over barium oxide,  $\text{BaO}$ , the two combine, forming barium sulphate,  $\text{BaO}_\cdot\text{SO}_3$ , or  $\text{BaSO}_4$ . But oftener metallic salts are formed by substitution of a metal for hydrogen, or of one metal for another. Thus, any metallic salt (e.g., zinc sulphate,  $\text{ZnO}_\cdot\text{SO}_3$ , or  $\text{ZnSO}_4$ ) may be derived from the corresponding acid or hydrogen salt,  $\text{H}_2\text{O}_\cdot\text{SO}_3$ , by a substitution of a metal for an equivalent quantity of hydrogen. Accordingly, metallic salts can be produced by the action of an acid on a metal or a metallic oxide or hydroxide, thus:



In these three examples the metallic salts formed are soluble in water. Insoluble salts are frequently produced by interchange of the metals between two soluble S., e.g., barium nitrate,  $\text{Ba}(\text{NO}_3)_2$ , and sodium sulphate,  $\text{Na}_2\text{SO}_4$ , thus :



In all these reactions hydrochloric acid or a metallic chloride might be substituted for the oxygen-acid or oxygen-salt, without the slightest change in the mode of action, the product now being a chloride instead of a nitrate or sulphate; thus :



Whence it appears that oxygen salts may be regarded either as compounds of acid oxides with basic oxides, or as analogous in composition to chlorides, i.e., as compounds of a metal with a radical (radicle) or group of elements, such as  $\text{NO}_3$  (called *nitrion*) in the nitrates, or  $\text{SO}_4$  (*sulphion*) in the sulphates, acting after the manner of chlorine,

## SALTS.

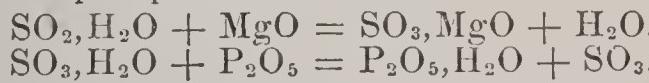
and like chlorine capable of passing unchanged from one compound to another.

It was long a question among chemists whether the former or the latter view should be taken to represent the actual constitution of oxygen salts. Berzelius divided salts into two classes : 1. *Haloid salts*—the chlorides, bromides, iodides, fluorides, which are compounds of a non-metal with a monad metallic element. 2. *Amphid salts*, consisting of an acid or electro-negative oxide, sulphide, selenide, or telluride, with a basic or electro-positive compound of the same kind ; as potassium arsenate,  $3\text{K}_2\text{O}, \text{As}_2\text{O}_5$  ; potassium sulpharsenate,  $3\text{K}_2\text{S}, \text{As}_2\text{S}_5$ , etc. Davy, on the other hand, in view of the close analogy between the reactions of chlorides, bromides, etc., and of oxygen salts, as sulphates, nitrates, etc., suggested that the oxygen salts might be regarded, like the chlorides, as compounds of metals with acid or electro-negative radicals, the only difference being that in the former the acid radical is an elementary body—chlorine, bromine, etc., while in the latter it is a compound— $\text{SO}_4$ ,  $\text{NO}_3$ ,  $\text{PO}_4$ , etc. This was called the *binary theory of salts*.

The formulas now in use are intended to exhibit, 1, the balance of neutralization of the units of valency or combining capacity of the several elements in a compound ; 2, the manner in which any compound or group of atoms splits up into subordinate groups under different reagents. According to the latter view, a compound of three or more elementary atoms may be represented differently according to the several ways in which it decomposes. Thus hydrogen sulphate or sulphuric acid,  $\text{H}_2\text{SO}_4$ , may be represented in these four ways :

1.  $\text{H}_2\text{SO}_4$ , which represents the separation of hydrogen and formation of a metallic sulphate, by the action of zinc or other metal.

2  $\text{SO}_3, \text{H}_2\text{O}$ , which represents the formation of the acid by direct hydration of sulphuric oxide ; the separation of water and formation of a metallic sulphate by the action of magnesia and other anhydrous oxides ; and the separation of sulphuric oxide and formation of phosphoric acid by the action of phosphoric oxide :



3.  $\text{SO}_2, \text{O}_2\text{H}_2$ , or  $\text{SO}_2(\text{OH})_2$ . This formula recalls the formation of sulphuric acid by the action of hydrogen dioxide,  $\text{H}_2\text{O}_2$ , or sulphur dioxide,  $\text{SO}_2$ .

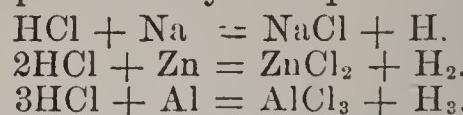
4. The formula  $\text{SH}_2\text{O}_4$  represents the formation of sulphuric acid by direct oxidation of hydrogen sulphide,  $\text{SH}_2$ , and the elimination of the latter by the action of ferrous sulphide,  $\text{FeS}$ :



*Normal, Acid, and Double Salts.*—Acids are monobasic, dibasic, tribasic, etc., according as they contain one or more atoms of hydrogen replaceable by metals. Monobasic acids form only one class of salts by substitution, the metal taking the place of the hydrogen in 1, 2, or 3

## SALTS.

molecules of the acid, according to its equivalent value ; thus the action of hydrochloric acid on sodium, zinc, and aluminium is represented by the equations :

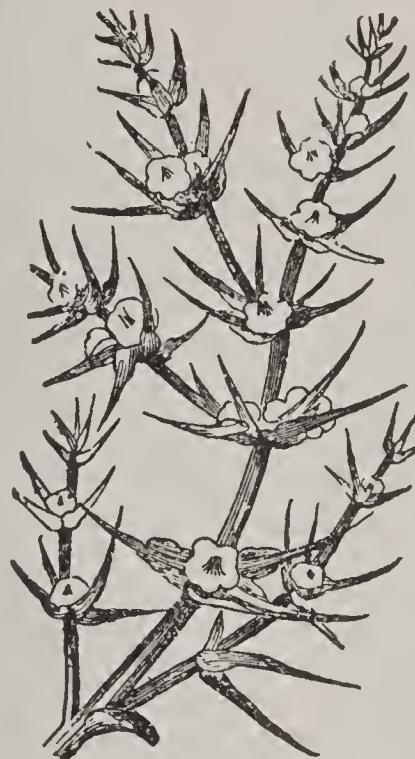


Bibasic acids on the other hand form two classes of salts—*primary* or *acid salts*, in which half the hydrogen is replaced by a metal ; and *secondary salts*, in which the whole of the hydrogen is thus replaced ; and the salt is called *normal* or *neutral* if it contains one metal, and *double* if it contains two metals. Tribasic acids, in like manner form two classes of acid salts, *primary* or *secondary*, according as  $\frac{1}{3}$  or  $\frac{2}{3}$  of the hydrogen is replaced by a metal ; also *tertiary* salts, including *normal* and *double* or *triple salts*, in which the hydrogen is wholly replaced by one or more metals. In *quadribasic* acids the variety is of course greater.

*Solubility of Some Salts in Water.*—Why some salts dissolve in water and others do not, is a question that at present cannot be answered. So much, however, is certain, that nearly all salts which unite with water of crystallization are easily soluble in water, the only prominent exception being calcium sulphate,  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ , which is only slightly soluble. Normal nitrates are all soluble in water, except a few that, like  $\text{Bi}(\text{NO}_3)_3$  (normal nitrate of bismuth), are decomposed by water. Chlorides are generally soluble, the chief exceptions being silver chloride and mercurous chloride, which are insoluble ; lead chloride, only slightly soluble ; and others, as antimonious chloride, which are decomposed by water. Sulphates, except lead, barium, and strontium sulphates, are soluble. Mercuric and antimonic sulphates are decomposed. Sulphides, carbonates, and phosphates of all except the alkali metals are usually insoluble in water. The solubility increases with rise of temperature.

## SALTWORT—SALUTARY.

**SALT'WORT** (*Salsola*): genus of plants of nat. order *Chenopodiaceæ*, having hermaphrodite flowers, with 5-parted perianth, and a transverse appendage at the base of each of its segments, five stamens and two styles, the seed with a simple integument. The species are numerous, natives mostly of salt marshes and sea-



Prickly Saltwort (*Salsola kali*).

shores, widely diffused. PRICKLY S. (*S. kali*) has herbaceous prostrate much-branched stems, awl-shaped, spine-pointed leaves, and axillary solitary greenish flowers: it was formerly collected on the shores of Britain, to be burned for the soda which it thus yields. *S. sativa* is the chief Barilla (q.v.) plant of s. Spain.

**SALUBRIOUS**, a. *sa-lō'bri-ūs* [L. *salubris*, health-bringing—from *salus*, health: It. and F. *salubre*]: healthful; favorable to health; promoting health. **SALU'BRIOSLY**, ad. *-lī*. **SALU'BRIOUSNESS**, n. *-nēs*, or **SALU'BRIETY**, n. *-bri-tī* [F. *salubrité*—from L. *salubritātem*]: healthfulness; favorableness to the preservation of health.—SYN. of ‘salubrious’: wholesome; salutary; healthy; healthful; beneficial.

**SALUTARY**, a. *sāl'ū-tér-i* [F. *salutaire*, salutary—from L. *salutāris*, healthful—from *salus* or *salūtem*, health]: promotive of health or safety; healthful; wholesome; contributing to some beneficial purpose. **SAL'UTARILY**, ad. *-tér-i-lī*. **SAL'UTARINESS**, n. *-nēs*, the quality of contributing to health.—SYN. of ‘salutary’: wholesome; beneficial; salubrious; advantageous; profitable; useful.

## SALUTE—SALVADOR.

SALUTE, n. *sa-lôt'* [F. *salut*, safety, salutation—from L. *salus* or *salûtem*, health, welfare: It. *salute*, salutation]. expression of kind wishes or respects to any one present: mark of respect shown by a soldier raising his hand to his cap, or ‘presenting arms,’ or by an officer raising his hand to his cap, or, in a march past, lowering his sword: greeting; kiss: also, see SALUTE, MILITARY AND NAVAL: V. to address with expressions of kind wishes and respect; to greet; to give a passing recognition to by a bow, etc.; to kiss; in the *army* and *navy*, to honor by a discharge of firearms, striking the colors, etc. SALU'TING, imp. SALU'TED, pp. SALUTATION, n. *sâl'û-tâ'shûn* [F.—L.]: a greeting; the act of paying respect or reverence in the usual style. SALUTER, n. *sa-lô'tér*, one who salutes. SALUTATO'RIAN, n. *-ta-tô'rî-an*, the student of a college who pronounces the salutatory oration at the annual commencement. SALU'TATORY, *-ta-tér-i*, speaking a welcome; greeting: N. in the *United States*, the student’s oration which introduces the exercises of a college commencement; in *OE.*, a place of greeting; a porch.

SALUTE', MILITARY and NAVAL: recognition of rank in the army and navy, when a royal personage, or high official, presents himself; a compliment when squadrons or armed bodies meet, when officers are buried, and on many other ceremonial occasions. There are several modes of saluting: firing great guns and small-arms, dipping colors, flags, and topsails, presenting arms, manning the yards, cheering, etc. A royal salute consists in the firing of 21 great guns; in the lowering by officers of their sword-points, and the dipping of the colors. The national U. S. salute is a gun fired for every state. For the pres. 21 guns are fired, vice-pres. 17; for cabinet officers, generals in command, and governors of states, 15; for major-generals and U. S. or foreign ambassadors, 13; for brig. generals, 11, etc.

SALUZZO, *sâ-lôt'sô*, or SALUCES, *sâ-lüss'*: Episcopal city of n. Italy, in the province of Cuneo, at the foot of the Alps. It contains a semi-Gothic cathedral built 1480, with pillars of rare marbles, and colossal statues. Noteworthy are also the ancient civic palace, the old castle of the marquises of S. (now a prison), and a ruined abbey. S. was the birth-place of Silvio Pellico. Its products are grain, hemp, and wine; and its manufactures are silk fabrics and hats. Pop. commune (1881) 15,641; town about 10,000.

SALVABLE, a. *sâl'va-bl* [L. *salvus*, safe, unharmed]: that may be saved; admitting of salvation. SAL'VABLY, ad. *-blî*. SAL'VABIL'ITY, n. *-bil'i-tî*, the possibility of being saved.

## SALVADOR.

SALVADOR, *säl-vā-dōr'* : smallest, though one of the most densely populated of the Central American Republics (see AMERICA) ; consisting of a strip of territory 160 m. long between Honduras and the Pacific, bounded w. by Guatemala, and e. by Fonseca Bay, separating it from Nicaragua ; length e. to w. about 140 m., average breadth about 60 m. ; 7,728 sq. m. with pop. of about 139 to the sq. m. The northern frontier is formed by a portion of the great Cordillera chain, and parallel to this range, and between it and the Pacific sea-board, runs another range of mountains along the whole length of the country, breaking it up into an inland valley, and a long low rich belt along the coast. This central range has 16 volcanic peaks, ranging in height from 7,386 to 4,000 ft. There are numerous lakes, the largest of which is Guija, about 90 m. in circumference, and abounding in fish. The greater portion of the interior valley, and the alluvial strip lying along the coast, are of extreme fertility, and agriculture is practiced, to the almost total exclusion of pastoral pursuits. The principal products have long been indigo, sugar, and maize, cotton also being successfully cultivated in districts around La Libertad and the Bay of Jiquilisco. Coffee is now the chief export ; of the imports the principal is cotton goods. The coast from Acajutla (30 m. from the w. frontier) to La Libertad is known as the *Costa del Balsamo*, or Balsam coast, as in the woods of this district is produced the famous 'Balsam of Peru,' in such quantities that 17,600 to 22,000 lbs. are annually exported. The mineral wealth is not very great, but rich veins of silver are found at Tabanco in the n.e., and mines of iron in the w. near Santa Ana. There is considerable export trade in Indigo (known in trade as 'indigo of Guatemala,' and reckoned the finest of all) and sugar, as well as turpentine, cocoa, cotton, and spices. Annual value of exports, about \$10,950,000; imports, \$6,500,000. The exports to the United States 1902-03 were \$1,891,987; imports \$797,-253; chief export, coffee, \$1,305,894. The revenue 1901 was \$6,556,722; expenditure \$7,640,891. The debt 1899 was \$3,197,960; foreign debt \$3,552,193.

The climate generally salubrious, and the temperature is lower than might be expected from the low latitude and low elevation of the country. There is liability to volcanic disturbances, and earthquakes have wrought serious damage.

The bulk of the population is composed of Indians and mixed races, there being about three-fifths of the former. There are about 9,000 whites (of Spanish origin), and 1,000 negroes. The Indians are of Aztec race, speak the Spanish language, and profess the Rom. Cath. religion (the one established by statute), but retain many of their old heathen rites, and live in some degree apart from the rest of the population. They have the rights of citizens, but generally exercise them under the advice of the govt. The govt. is administered by a pres., elected for 4 years, who appoints secretaries to take charge of the 4 departments—foreign relations; justice and worship; war, finance, and

## SALVADOR.

interior ; and public instruction. The legislature consists of an upper chamber of 12 senators, and a lower of 24 representatives. Education is provided for, every village of 50 inhabitants being bound by law to support a school, and there is a university in the capital, San Salvador (q.v.), besides two others, partly provided for by the state. In 1888 there were 375 schools for boys and 184 for girls, with 21,101 pupils in all. The standing army is 2,000 men ; militia, 20,000 ; annual cost of war department, \$756,000.

This country, originally *Cuscatlan*, 'the land of riches,' is said to have been, previous to the immigration of Europeans, the best peopled and most civilized country in America. It was conquered after a long and obstinate contest by Pedro de Alvarado, lieutenant of Cortes ; and under Spanish rule was one of the most flourishing portions of the Guatemalan kingdom. In 1821 it threw off the yoke, and joined the Mexican Federation, from which, however, it seceded 1823. The several trials since made of a union among the Central American states have ended in the dissolution of all political connection ; so that S. is now an independent republic. In 1863 there was a war between S. and Guatemala, in which Honduras joined the former, and Nicaragua the latter. The result was the defeat of Salvador, and expulsion of the pres. from the country. In 1890 there were 120 m. of railroads with several new lines projected ; 89 telegraph offices with 1,467 m. of line ; 3 banks and several banking firms ; and 180 mines and quarries in operation — Pop. (1883) 613,273 ; (1888) 664,513 ; (1891) 777,895 ; (1901) 1,006,848.

## SALVAGE—SALVATION ARMY.

**SALVAGE**, n. *sāl'vāj* [OF *salvage*, salvage—from L. *salvus*, saved, preserved] : payment due by the owner of a ship or cargo to persons who may have been instrumental in saving it from extraordinary danger—from the sea, fire, or an enemy: the goods that have been saved. **SAL'VOR**, n. *-vér*, one who is entitled to salvage.—*Salvage* was recognized in the earliest maritime codes—as in the laws of Rhodes, Oleron, and Wisby. By the law of England and of the United States, the amount of S. is to be determined by the court: and the court awards an amount generally much greater than would be mere compensation for the time and labor of the salvors; this as an inducement to others to render like services. The court takes into account the peril of the property, its value, the risks of the salvors, etc.; and decrees recompense accordingly. S. is not due for the saving of life only, unless it be the life of a slave. S. charges are assessable *pro rata* on all the goods saved. If an express agreement be made to pay a fixed sum whether the property in peril be saved or lost, the salvors cannot recover a larger amount. The distribution of S. among the salvors is usually made on this basis:  $\frac{1}{3}$  (or more) to the owner of the salvor vessel; to the master twice as much as to mate; to the mate twice as much as to a seaman; to the salvor crew that takes a derelict into port twice as much as to their fellows who remain on the salvor vessel.

**SALVATELLA**, n. *sāl'va-tē'lā* [mid. L. *salvātus*, saved—from L. *salvus*, safe] : a vein in the arm terminating in the fingers, formerly regarded as having peculiar influence on the health when opened.

**SALVATION**, n. *sāl-vā'shūn* [F. *salvation*—from mid. L. *salvatiōnem*—from *salvātus*, saved—from L. *salvus*, saved: It. *salvazione*: Sp. *salvacion*] : preservation; deliverance from enemies; the redemption of man by Jesus Christ from sin and death, into holiness and the everlasting life.

**SALVATION AR'MY**: Christian organization, whose aim is to bring under the influence of the gospel the classes not reached by the ordinary agencies of the churches—the inhabitants of the lowest slums of cities, profligates, thieves, confirmed drunkards and vagabonds, as well as those who, though of worthy character, are in deep poverty. It was founded 1865 by William Booth (q.v.), now called ‘General’ Booth, formerly a minister of the Methodist New Connection. The organization steadily grew, and 1878 the name Salvation Army was adopted. Its members not merely fight figuratively under the Lord Jesus as the Captain of Salvation, but delight in applying pseudo-military terms to all their offices and actions. Thus the various local associations are ‘corps,’ and all the missionaries, male and female, are ‘officers’ (majors, captains, etc.); preliminary prayer is ‘knee drill,’ and public devotional services are ‘skirmishes,’ ‘engagements,’ or ‘field-days.’ The services are utterly unconventional; much use is made of

## SALVE—SALVER.

processions in the streets, of banners, and of brass bands in worship. Ejaculations of applause and wavings of handkerchiefs and flags accompany the services. The doctrines are those of the evangelical churches, great stress being laid on purity of heart or sanctification. The army has excited singularly keen antipathy among the roughest part of the population, and its members have frequently been assaulted and maltreated, especially on occasion of processions. But they have undoubtedly been very successful in reclaiming drunkards and hopeless criminals, and their patient endurance and their active beneficence have at last gained them favor or at least tolerance among even the worst elements in the great cities of Britain. Their strange uncouth methods at first outraged the tasteful reverence of respectable church-members; but this by slow degrees gave place to a charitable endurance which in recent years has become a willing acceptance of them by the churches as a valuable help of the gospel in the field which they have chosen.—See BOOTH, WILLIAM. In 1883, the S. A. had nearly 1,000 ‘officers’ in Britain, and had missions in the United States, in Canada, Australia, New Zealand, the Cape, and France. Various periodicals, abounding in the military jargon of the S. A., have an immense circulation. Members of the association are expected to wear a badge; and if they can to procure a complete uniform. In 1890 the S. A. had in the United States 24 divisions and districts comprising 33 states; 14 commissioners; 33 rescue houses for fallen women; 33 ‘slum’ posts; 10 prison gate brigades. In 1902 it was estimated that the total number of officers in the world was 15,700; that of the voluntary officials 45,000. There were 1,338 corps and 4,306 officers in Great Britain and 735 corps and 2,709 officers in the United States. In 1896 Commander Ballington Booth was ordered to a foreign command, but believing it his duty not to leave America, after protracted conference he severed his connection with the S. A., and organized a new society. See VOLUNTEERS, AMERICAN.

SALVE, n. *sáv* [Goth. *salbon*; Ger. *salven*, to anoint: A.S. *sealf*; Ger. *salbe*, salve: comp. Gael. *sàbh*, ointment]: an ointment for healing: V. to heal by external application of ointment; to flatter; to wheedle; to help with an excuse. SALV'ING, imp. SALVED, pp. *sávd*.

SALVE, v. *sálv* [L. *salvus*, safe]: to save a ship or goods from danger of any kind; to save goods from fire. SALV'ING, imp. SALVED, pp. *sálvd*. See SALVAGE.

SALVE, v. *sálv* [L. *salvē*, hail!]: in O.E., to salute.

SALVELI'NI: see CHARR.

SALVER, n. *sál'ver* [Sp. *salva* or *salvilla*, originally the tasting of meat at a great man’s table, then a salver—from *salvar*, to taste, to prove food—from L. *salvus*, safe]: a plate or tray on which anything is presented. SALVER-SHAPED, a. in bot., same as *hypocrateriform* (q.v.).

## SALVE REGINA—SALZBRUNN.

**SALVE REGINA**, *săl've rē-jī'nâ*: first words of one of the most popular hymns in the Rom. Cath. Church, addressed to the Blessed Virgin Mary. It forms part of the daily office of the Breviary, and is recited at the end of ‘Lauds’ and of ‘Compline.’ But it is still more in use as a hymn of private devotion, and concludes with an earnest and tender appeal for the intercession of the Blessed Virgin with her Son, ‘that we may be made worthy of the promises of Christ.’

**SALVIA** n. *săl've-a* [L. *salvia*, the herb sage—from *salvus*, safe, well]: a genus of plants, several species of which are garden plants, distinguished by their lipped calyx and very long connectives, ord. *Labiatae*: see SAGE.

**SALVINI**, *săl've-nē*, TOMMASO: Italian actor: b. Milan, Italy, 1830, Jan. 1. He inherited his art from his parents, and entered early on the stage. At 19 years of age, he participated in the anti-Austrian and republican revolution. Besides the principal rôle in many Italian and French plays, he performed with great ability the parts of Othello, Romeo, Hamlet, etc., and ranked with the masters of tragedy. In 1873–4, he gave many performances in the principal cities of the United States, and again in 1881 and 1889.

**SALVO**, n. *săl'rō* [It. *salva*, a salute of firearms]: military salute, as a *salvo of artillery*.—S. is also a concentrated fire from a greater or less number of pieces of artillery. Against a body of men, a S. is generally useless, as the moral effect is greater in proportion to the area over which devastation is spread; but with fortifications, the case is otherwise. For the purpose of breaching, the simultaneous concussion of a number of cannon-balls on masonry, or even earth-work, produces a very destructive result. At Almeida, after the French had fired a few salvos of 65 guns, the castle sank in a shapeless mass. The effect of a S. of modern artillery, with its enormous steel shot, against iron-plated ramparts, has never yet been tried in actual war.

**SALVO**, n. *săl'vō* [contracted from L. *salvo jure*, saving the right—an expression used in reserving rights]: an exception; a reservation.

**SAL VOLATILE**: see under SAL.

**SALVOR**: see under SALVAGE.

**SALZBRUNN**, *sălts'brün*: name of three villages, NEU, *noy*, NIEDER, *nē'dér*, and OBER, *ō'bér*, S.; in Prussian Silesia, 37 m. s. w. of Breslau. They have eight mineral springs and baths, visited annually by about 4,000 pulmonary patients. Alkalo-saline water is exported. Pop. (1880) resident 5,777.

## SALZBURG.

SALZBURG, *sâlts'bûrch*: a crown-land in w. Austria, bounded w. partly by Bavaria, partly by the Tyrol; 2,765 sq. m. The principal mountain-ranges are the Noric Alps, which traverse the south of S. from w. to e., and in the Grossglockner rise 12,360 ft.; and branches of the Rhætian Alps, which separate the Tyrol from S., and ramify throughout the middle districts of the latter, rising in the Ewiger Schneeberg 9,580 ft. Snow-fields and glaciers occur in the more elevated regions. The chief river, the Salza, draining the greater part of the crown-land, flows first e., then n., and is 147 m. in length. The climate is cold and variable, but healthy, and though, of the whole area, 2,000 sq. m. are capable of bearing crops, this crown-land is inferior to most of the provinces of the monarchy in quantity and value of products. The rearing of cattle and horses is an important industry. Salt is obtained in large quantities, especially at Halle (q.v.). Salzburg (q.v.) is the capital. Pop. of crown-land (1880) 163,566, nearly all Rom. Cath., and of German stock; (1890) 173,510; (1900) 810,346.

SALZBURG (anc. *Juvavia*): the most charmingly situated town in Austria or Germany; it is cap. of the Austrian crown-land of S. It is on both banks, but chiefly on the left bank of the Salza, 190 m. w.s.w. of Vienna by railway, 87 m. s.e. of Munich. Here the river, banked on both sides by precipitous crags, rushes through what seems a natural gateway, and flows to its junction with the Inn. The picturesque situation of the city has elicited the admiration of many travellers. The town is of anc. ecclesiastical origin, and is full of objects of interest. The heights on either bank of the Salza are crowned with edifices. That on the left, Mönchsberg (1,732 ft.), is surmounted by the castle Hohen-Salzburg, an irregular feudal citadel of the 11th c., and, during the middle ages, the residence of the archbishops of S., who combined the dignity of princes of the German empire with their ecclesiastical rank. The castle, dismantled, is now a barrack. A statue of Mozart (q.v.) adorns one of the squares. Opposite Mönchsberg is the Capuzinerberg (2,132 ft.) with a convent. The cathedral, a large and beautiful Italian edifice, was built early in the 17th c. The architectural taste of the prince-archbishops has adorned the city with many beautiful edifices, chiefly in the Italian style. The city is surrounded by walls, here and there dismantled, and the bastions are mostly in decay. The city is the seat of an abp., and contains numerous libraries, museums, and educational and other institutions, among which is an upper gymnasium, and the *Mozarteum*. It has some manufactures, is in communication with Vienna, Munich, and Innspruck by railway, and has considerable transit-trade. Pop. (1890) 27,741; (1900) 33,067.

## SALZKAMMERGUT—SAMANI.

**SALZKAMMERGUT**, *sâls-kâm'mér-gôt*, called also the AUSTRIAN SWITZERLAND: one of the most picturesque districts of Europe; forming the s.w. angle of Austria ob der Enns, between the crown-land of Salzburg on the w., and Styria on the e.; 249 sq. m. The scenery combines in rare beauty the usual features of valley, mountain, and lake. The vales are clothed with rich verdure and studded with clumps of fruit and forest trees; the mountains are covered with beeches and oaks; higher up with pines and larches; and some are topped with everlasting snow. The highest peak, the Dachstein, rises 9,846 ft. But the district derives its reputation for beauty chiefly from its lakes, the largest and most famous of which are the Hallstadt and the Traun, or Gmunden lakes. They are bordered with lofty mountains, which rise sheer from the water; and their pit-like character, and the strong light and shade thrown on them from the mountains, combine to render the scenery, of which they form the centre, unusually sublime. The Hallstadt and Traun lakes are connected, and indeed formed, by the river Traun. The district is a favorite resort for tourists. It takes its name from the salt obtained in enormous quantities from its springs and mines. Salt being a govt. monopoly in Austria, the works are under the management of the *Kammer*, or exchequer. From 6,000 to 7,000 of the inhabitants are employed in the salt-works, and the amount annually obtained is nearly 50,000 tons. The chief seats of the salt-works are Ischl (q.v.) and Hallstadt. There is little agriculture in the S., and the inhabitants not employed in the salt-works are engaged in cattle-breeding and in the timber trade. Pop. about 18,000, of whom 6,500 are Protestants.

**SALZWEDEL**, *sâls'vâ-dêl*: ancient town of Prussian Saxony, 54 miles n.n.w. of Magdeburg, on the Jeetze. It carries on sugar-refining, and manufactures of linen, woolen, and cotton fabrics. Pop. (1890) 9,008.

**SAM**, or **SAME**, ad. *sâm* [see **SAME**]: in *OE.*, together.

**SAMANA'**: see **SAN DOMINGO**.

**SAMANI**, *sâ-mâ'nê*, AND **DILEMI**, *dî'lé-mî*: two dynasties which divided between them the kingdom of Persia toward the beginning of the 10th c. They both rose to power through the favor of the caliphs, but they speedily threw off the yoke. The Dilemi, divided into two branches, exercised sovereign authority in Kerman, Irak, Fars, Khuzistan, and Laristan, always acknowledging their nominal dependence on the caliph; and during the whole period of their rule, one of the southern branches of this family was vested with the dignity of *emir-ul-omra*, or vizier, and managed the affairs of the caliphate. Several of the Dilemi were able and wise rulers, as the remains of their works of irrigation and other structures testify; but Mahmud of Ghizni put an end to the rule of the northern branch 1029, and the Seljuks subjugated the southern 1056 by the capture of

## SAMAR—SAMARA.

Bagdad, their last stronghold. Their more powerful rivals, the *Samani*, had obtained from the caliph the govt. of Transoxiana 874; and to this, Ismail, the most celebrated prince of the family, speedily added Khauruzm, Balkh, Khorassan, Seistan, and many portions of n. Turkestan. Rebellions of provincial governors distrusted the Samanide monarchy toward the end of the 10th c.; and their dominions north of Persia were taken possession of by the khan of Kashgar, the Persian provinces being added by Mahmud of Ghizni to his dominions.

**SAMAR**, n. *sā'mâr*, or **SAMARA**, n. *sām'a-ra* [L. *samar*, *samera*, the seed of the elm]: in bot., a compressed, few-seeded, coriaceous or membranous, indehiscent pericarp, with a membranous expansion or wing at the end or edges, as in the ash, maple, and elm, and called key-fruit **SAM'AROID**, a. -*oyd* [Gr. *eidos*, appearance]: resembling a samara.



Samara of the Common Maple.

**SAMARA**, *sā-mâ-râ'*: frontier govt. of s.e. Russia, bounded e. by the Kirghiz Steppes, and w. by the govts. of Saratov, Simbirsk, and Kazan; 58,320 sq. m. It was erected into a govt. by ukase 1850, Dec., and was formed out of portions of the govts. of Simbirsk, Orenburg, and Saratov. The Volga, which forms the w. boundary, and its affluent, the Samara, are the chief rivers. The country is very fertile; and agriculture and fishing are among the chief employments of the inhabitants. Only a comparatively small portion of the country is colonized. Chief town Samara (q.v.). Pop. of govt. (1882) 2,224,093; (1889) 2,614,405.

**SAMARA'**: town, cap. of the Russian govt. of S., on the left bank of the Volga, at the junction of that river with the Samara. It is the chief grain-market on the Volga, and contains numerous store-houses, especially for grain. A good trade in salt, fish, caviare, and tallow is carried on. Business and population are increasing. From S. are brought a great number of lambs' skins, famous for their fineness. Pop. (1869) 34,500; (1880) 51,947; (1888) 75,478.

## SAMARANG—SAMARIA.

SAMARANG, *sâ-mâ-râng'*: important seaport on the n. of Java, 385 m. (by steamboat course) e. of Batavia;  $6^{\circ} 57' 20''$  s. lat.,  $110^{\circ} 26' 30''$  e. long; cap. of the residency, under Dutch control, and the point to which the produce of Middle Java is brought for export. The city lies on the right bank of the river Samarang. A railway to the Vorstenlanden (Princes' Lands), 126 m. long, was completed 1874. The Chinese, Malays, and Arabians have their own captains, and quarters of small, dark, dirty houses. The Europeans dwell partly along the sea-shore, but chiefly on the left of the river, by the shady road to Bodjong, the resident's house, which is two miles from the city. The Protestants and Rom. Catholics have each a church, orphan-house, and school. There are several public and private schools, an excellent hospital for 550 patients, and other charitable institutions.

Only small vessels can enter the river. The roadstead is exposed to the w. wind, and is dangerous during the rainy season. Besides the usual trades, the natives work in gold, silver, copper, and tin. Coffee, rice, sugar, tobacco, and indigo are chief exports, an agent of the Netherlands Trading Company (q.v.) being established at S. to attend to the govt. trade.—Pop. of the residency of S. about 1,300,000, 4,000 being Europeans, and 15,000 Chinese. Pop. of city 80,000.

SAMARIA, *sa-mâ'rî-a* (Heb. *Shomerôn*, Chald. *Sham-rayin*, Septuagint, *Samareia*, *Semerôn*, etc.): anciently a city of Palestine, chief seat of the Ephraimitic Baal-worship, and, from the seventh year of Omri's reign, cap. of the kingdom of Israel. It was beautifully situated on a hill about 6 m. n.w. of Shechem, and may have derived its name (which may be interpreted 'pertaining to a watch' or a 'watch-mountain') from the position of the hill, which rises about 1,470 ft. above sea-level from the centre of a wide valley, and commands an extensive prospect; but an eponymous etymology is adopted by the writer of I Kings, who says (xvi. 24): 'And he [Omri] bought the hill Samaria of Shemer for two talents of silver, and built on the hill, and called the name of the city which he built, after the name of Shemer, owner of the hill, Samaria.' The date assigned to Omri's purchase is B.C. 925, from which time S. became the seat of govt., which had been at Thirsa. It was twice besieged by the Syrians, B.C. 901 and B.C. 892, under Ahab and Joram, on both occasions unsuccessfully; but B.C. 721 (720), it was stormed by Shalmaneser, King of Assyria, after three years' siege. Its inhabitants, together with those of all the other 'cities of Samaria' (which had become the general name for the country itself in which the city stood), i.e., the kingdom of Israel—or the 'ten tribes'—were then carried off into a captivity from which they never returned. These were the ten 'lost tribes of Israel.' Their place was supplied, after a time, by colonists, planted there by Shalmaneser.

## SAMARIA.

and Esarhaddon, from Babylon, Cuthah, Ava, Hamath, and Sepharvaim (according to II Kings, xvii. 24; Media and Persia, Josephus's *Antiquities*, x. 9, 7), who constituted the original body of the people subsequently known as Samaritans, but whose bulk was gradually increased by accessions of renegade Jews and others. The question has been much, and on the whole unprofitably, discussed, whether these so-called 'Samaritans' were a mixed race of remanent Israelites and heathen Assyrians, or whether they were exclusively the latter. The mere language of Scripture, strictly construed, seems to favor the second of these views, unless the term 'cities,' II Kings, xvii. 24, is intended to imply that the ancient inhabitants dwelt in the open country. On the other hand, we find, apart from the other reasons against so unparalleled a wholesale deportation, Israelitish inhabitants under Hezekiah and Josiah, both in Ephraim and Manasseh. Modern authorities therefore assume that they were, to a certain extent, what they always insisted on being, Israelites—not Jews), i.e., a people largely intermixed with Israelitish elements, that, during the exile, had adopted the worship of Jehovah. The returning Jews, however, would not recognize their claims to participation in the national *cultus* and temple, and a bitter antagonism sprang up between the two nationalities. B.C. 409 a rival temple was erected on Mount Gerizim, and a rival priesthood and ritual organized; and thenceforth the breach, for some periods at least, became apparently irreparable—'the Jews had no dealings with the Samaritans,' and vice *versâ*. At other periods, however, a more friendly intercourse seems to have subsisted. The rabbinical laws respecting the 'Kushites' (Cuthim), as they were called by the later Jews, are therefore strangely contradictory, and their discrepancies can be explained only in part by the ever-shifting phases of their mutual relations, and in part by the modifications which occurred in the Samaritan creed itself. The later history of the city of S. is somewhat checkered. It was captured by Alexander the Great, when the 'Samaritan' inhabitants were driven out, and their place supplied by Syro-Macedonians. It was again taken B.C. 109 by John Hyrcanus, who completely destroyed it. Soon rebuilt, it remained for the next 50 years in possession of the Jews; but Pompey, in his victorious march, restored it to the descendants of the expelled Samaritans who had settled in the neighborhood, and it was refortified by Gabinius. Herod the Great rebuilt it with considerable splendor, and called it Sebaste, in honor of Emperor Augustus, from whom he had received it as a present. In the 3d c., it became a Roman colony and an episcopal see. Its prosperity perished with the Mohammedan conquest of Palestine; and at present it is only a small village called Sebustieh—Arab corruption of Sebaste—but contains a few relics of its former greatness. 'Samaritans,' as a religious sect, still exist at Nablus (anc. Shechem),

## SAMARITAN—SAMARITAN PENTATEUCH.

as they have existed in the district uninterruptedly through all vicissitudes of war and conquest since the time of Christ. Their present creed and form of worship agree in many particulars with that of the so-called ‘rabbinical’ Jews, although the Samaritans pretend utterly to reject the ‘Traditions.’ They alone, however, have retained the paschal sacrifice of a lamb.

**SAMARITAN LANGUAGE.**—This language has by some scholars been regarded as a mixture of Aramaic and Hebrew, but now it is regarded as a pure dialect of w. Aramaic. The earlier opinion was based on data supported by the Samaritan Pentateuch (q.v), which is a translation not very skillfully executed from the Hebrew. An attempt is plainly seen to embellish the language of the translation by introducing forms borrowed from the Hebrew original; and the introduction of Hebrew and even Arabic words and forms was practiced in Samaria on a still larger scale by copyists who lived after Aramaic had become a dead language: see **ARAMÆA**. The Samaritan language remains only in a few fragments of ancient literature, a translation of the Pentateuch, and some liturgical pieces. The present inhabitants speak Arabic.—See Dr. Robinson’s *Biblical Researches*, Raumer’s *Palästina*, and Dean Stanley’s *Sinai and Palestine*, etc.

**SAMARITAN**, n. *sā-mär'i-tan*: an inhabitant of *Samaria*; a descendant of the foreign race placed in Samaria after the captivity of Israel; the language of Samaria: ADJ. denoting the ancient characters used by the Hebrews before the Babylonish captivity, and thereafter in the language of the Samaritans. **GOOD SAMARITAN**, a charitable or benevolent person—in allusion to the character of the ‘good Samaritan’ in the parable.

**SAMARITAN PENTATEUCH**: recension of the commonly received Hebrew text of the Mosaic law, in use with the Samaritans, and to them the only canonical book of the Old Test. Some vague allusions in some of the Church Fathers (Origen, Jerome, Eusebius) and one or two more distinct, but less generally known, Talmudical utterances respecting this recension were all the information available till the early part of the 17th c. (1616), when Pietro della Valle acquired a complete codex from the Samaritans in Damascus. Since then, the number of MSS. of the S. P., with and without translations (in Arabic), has considerably increased in European libraries; and fragments, consisting of special books or chapters, are frequent. In fact, writing portions of S. P. on the oldest of skins, seems—in view of the great demand for the article on the part of ignorant European, especially English, travellers—a favorite and lucrative pastime, if not an established trade, among the modern Samaritans.

These MSS. are in the Samaritan character, a kind of ancient Hebrew writing, probably in use before and partly after the Babylonish exile; and they vary in size

## SAMARITAN PENTATEUCH.

from octavo to folio, the writing being proportionately smaller or larger. Their material is vellum, or cotton paper, and the ink is black, except the Nablûs MS. in gold. There are neither vowels, accents, nor diacritical points, the single words are divided from each other by dots. None of the MSS. that have reached Europe are older than the 10th c. The S. P. was edited first by J. Morinus in the Paris *Polyglott* (pt. iv. 1632) from one codex (whence it found its way into Walton), and was re-edited, written in the square Hebrew character, last by B. Blayney, Oxford, 1790. The first publication of this strange document, and principally the *Exercitationes Ecclesiasticæ*, with which J. Morinus accompanied it, mark a certain epoch in modern biblical investigation; for, incredible as it now appears, it was placed by Morinus and his followers far above the received Hebrew text, which was said to have been corrupted from it. As reasons for this, were adduced its supposed superior 'lucidity and harmony,' and its agreement with the Septuagint in many places. This opinion, which could have been entertained only by men devoid of knowledge, was both zealously cherished and fiercely combated for exactly 200 years, when the first proper and scientific investigation (by Gesenius) set it at rest, once for all, among the learned world. This absurd notion owed its popularity chiefly to the anti-Jewish as well as anti-Protestant tendency of its supporters, to whom every attack against the received form of the text—that text on which alone the Reformers professed to take their stand—was an argument in favor of the Rom. Cath. dogma as to the 'Rule of Faith' (q.v.). This boasted superiority *en bloc* gradually dwindled down to two or three passages, in which the Samaritan reading seemed preferable; and even these have now been disposed of in favor of the authorized Masoretic text. The variants, which Gesenius was the first to arrange systematically, present simply the ordinary aspect of partly conscious, partly unconscious corruptions. They arose, for the greatest part, from imperfect knowledge of the elements of grammar and exegesis. Others owe their existence to a studied design of conforming certain passages to the Samaritan mode of thought, speech, and faith, especially to show that Mount Gerizim was the spot chosen by Jehovah for his temple. There are, however, only two essential alterations respecting the Mosaic ordinances themselves to be found, one, Exod. xiii. 7, where the S. P. has 'six days shalt thou eat unleavened bread,' instead of 'seven'; and Deut. xxiii. 17, where our 'shall be no' is altered into 'shall not live.' A chronological peculiarity deserves special mention—viz., that no one in the antediluvian times begets his first son in the S. P., after the age of 150 years, either the father's or the son's age being altered in proportion; after the Deluge, however, the opposite method is followed of adding 50 or 100 years to the father's years before the begetting of a son. We add

## SAMARKAND.

only that anthropomorphisms, as well as anthropopathisms, are carefully expunged, and that in Deut. xxvii. 4, Gerizim is wilfully substituted for Ebal.

In the absence of a critical edition, it is exceedingly difficult to do more than speculate on the age and origin of the S. P., and opinions remain widely divergent. The principal opinions on the subject are, briefly, either that it came into the hands of the Samaritans as a natural inheritance from the Jewish people, whom they succeeded at the time of the Babylonian exile; or that it was brought to them by Manasse (Jos. Ant. xi. 8, s. 2, 4), when the Samaritan sanctuary on Mt. Gerizim was founded; or, again, that the Israelitish priest sent by the king of Assyria to instruct the new settlers in the religion of the country, brought it with him. Of other more or less isolated opinions, only one deserves further notice, that it was a late and faulty recension, into which glosses from the LXX. (Septuagint) were received. This agreement, above alluded to, between the LXX. and the S. P. likewise has given rise to many speculations and suggestions. The foremost of these are, that the LXX. have translated from the S. P.; that mutual interpolations have taken place; that both versions were formed from Hebrew codices, differing among themselves, as well as from the authorized recension; and that many wilful corruptions have been superadded at a later time; finally, that the Samaritan has been altered from the LXX. There is also a translation of the S. P. (which is Hebrew) into the Samaritan idiom; it is ascribed by the Samaritans to their high-priest, Nathaniel, who died B.C. 20. It was probably a kind of popular version, like the Targums (q.v.); and was composed, very likely, shortly before the destruction of the second temple. The translation is done in a slavish and incompetent manner. Another Arabic version is due to Abu Said, in Egypt (1070), based on Saadiyah's translation; and to this Samaritan-Arabic translation, a Syrian, Abu Barachat, wrote, 1208, a commentary, sometimes erroneously taken to be an independent Syriac version of the S. P. Among principal modern writers on the Samaritan Pentateuch are Gesenius, Kirchheim, and Deutsch.

**SAMARKAND**, *sâ-mâr-kând'*: city, cap. of the great Tartar empire of Timur, centre of Mohammedan learning in central Asia; till 1868 the second city of the khanate of Bokhara; and since its annexation to the dominions of the czar one of the chief towns of Russian Turkestan. It is in lat.  $40^{\circ} 2' n.$ , and long.  $67^{\circ} 3' e.$ , 4 English m. s. of the Zer-Afshan (a river which 'loses itself in the sands'), and 145 m. nearly e.-by-n. from Bokhara. It is at the foot of Mt. Chobanata, in a plain of exuberant fertility; and from a distance, its glittering minarets, lofty domes, and prominent edifices and ruins, relieved by the brilliant green of the closely-planted gardens interspersed within the walls, present an im-

## SAMAVEDA.

posing effect. The river for centuries has been changing its course, and S. has followed it—so that it consists of a ‘new city,’ and the ruins of those which preceded it. The ‘new city’ is surrounded with walls, pierced with six gates, and is filled with narrow streets and lanes; but has been much improved by the Russians. The population, which in the 14th c. exceeded 100,000, and in 1834 had dwindled to 8,000, has since 1880 risen to 35,000. The inhabitants are chiefly Tajiks and Usbek, and employed in manufacture of silk, wool, and leather. The old or ‘ruined city’ is the portion most interesting to Europeans, as the capital of Timur, the great conqueror who wielded the sceptre of Asia from China to the Hellespont. Many of the ruins belong to this epoch, among which are the Hazreti Shah Zinde, formerly supposed to have been a summer palace of Timur, but now shown to have consisted of tombs and chapels only. In the centre of the city, separated from one another by a wide open space, stand three madresses, or sacred colleges; each consists of a large quadrangular court, surrounded by a range of two-storied buildings, with chambers occupied by teachers and pupils. One of the objects of interest in S. is the palace of the Emirs of Bokhara, within the citadel, where, before the Russian conquest, they were in the habit of spending the summer months with their harem suite. In one of the courts is the famous Kuk-tash, or green-stone, which served as Timur’s throne. The palace has now been converted by the Russians into a hospital.—S. was the anc. *Maracanda*, cap. of Sogdiana. It was seized by the Arabs 707, and from this time belonged either to the caliphate or to some of the dynasties which were offshoots from it, till 1219, when it was taken by Genghis Khan. In 1359 it was captured by Timur, and ten years afterward became the cap. of his empire. It remained the chief town of Turkestan till 1468, when it declined in importance with the rise of the Usbek, but retained its place as the chief seat of Mohammedan learning in Asia. Until recently it had been visited by only four Europeans—1404 by the Spaniard Clavijo, 1841 by Lehmann and Chanykow, and 1863 by Vambery. But 1868, May, the gates were opened to the Russians (see BOKHARA). The inhabitants have shown less antipathy to the rule of the ‘infidel’ than might have been expected, from the reputation of S. as a seat of Mohammedan fanaticism. The Jews have prospered by the encouragement given to trade; and the Tajik population have shown, as in the other cities of Turkestan annexed by Russia, good-will toward their conquerors, and a desire to adopt European ideas.—See Vambery’s *Travels in Central Asia* (Lond. 1864); and paper on ‘Ruins of Samarkand,’ by Prof. Fedchenko, in *Proceedings of Royal Geographical Soc.*, 1871, Dec.

SAMAVEDA, *sâ-ma-vê-da*: one of the four Vedas: see VEDA.

## SAMBAS—SAMNITES.

SAMBAS': see PONTIANAK.

SAMBO, n. *sām'bō* [Sp. *Zambo*]: the offspring of a negro and a mulatto; a familiar name for one of the negro race.

SAM'BOO, or SAM'BUR: see RUSA.

SAMBOR, *sām'bōr*, NEW: town of the Austrian empire, in the province of E. Galicia. It is a thriving and well-built town, with manufactures of linens and extensive salt works. Pop. (1880) 13,586.

SAMBU'CUS: see ELDER.

SAMBUKE, n. *sām'būk* [L. *sambuca*—from Gr. *sambukē*]: an ancient musical instrument; though applied sometimes to several musical instruments of different kinds, such as a lyre, a dulcimer, a triangular harp or trigon, and often to a large Asiatic harp.

SAME, a. *sām* [Goth. *sama*, same; *samana*, together; Slav. *sam*; Russ. *samüi*, self: L. *simul*; Gr. *hama*, together; Skr. *sama*, alike, equal]: not different or other; identical; equal; that was mentioned before. SAMENESS, n. *-nēs*, near resemblance; similarity.

SAMIAN, a. *sā'mi-an*: from the isle of Samos. The SAMIAN SAGE, Pythagoras, born in Samos. SAMIAN LETTER, a letter formed of a stem bifurcating thus V, employed by Pythagoras to symbolize the straight narrow path of virtue which, once departed from, rapidly fades from the sinner's sight: also PYTHAGOREAN LETTER.

SAMIEL, n. *sā'mi-ēl* [Turk. *sam-yeli*—from Ar. *samm*, poison, and Turk. *yel*, wind]: the hot poisonous wind which often blows in Arabia; also called the *simoom*.

SAMITE, n. *sām'it* [OF. *samit*, a silk stuff—from mid. L. *examitum*, a silk stuff—from Gr. *her*, six; *mitos*, the thread of a web]: in OE., a silk stuff; velvet; satin.

SAMLET: see under SALMON.

SAMMATIYA: one of the four divisions of the *Vai-bhāshika* system of Buddhism: its reputed founder was *Upāli*, disciple of the Buddha, S'ākamuni.—See C. F. Koeppen, *Die Religion des Buddha* (Berlin 1857); W. Was-siljew, *Der Buddhismus, seine Dogmen, Geschichte und Literatur* (St. Petersburg 1860).

SAMNITES, *sām'nīts*: ancient Italian people of Sabine origin, who occupied an extensive and mountainous region of s. Italy. They were surrounded on the n. by the Peligni, Marsi, and Marrucini; on the w. and s.w. by the Latins, Volscians, Sidicini, and Campanians; on the s. by the Lucanians; and on the e. by the Apulians and Frentani. The S. were divided into four nations: 1. The *Caraceni* in the n., whose cap. was Aufidena. 2. The *Pentri* in the centre, whose cap. was Bovianum, the most powerful nation of the Samnite stock. 3. The *Caudini* in the s.w. 4. The *Hirpini* in the s., cap. Beneventum. For account of their origin, ethnological affinities, and history, see ROME (*History*).

## SAMOA--SAMOS.

**SAMOA**, *sâ-mô'â*, or **SAMOAN ISLANDS**, or **NAVIGATORS' ISLANDS**: group of islands, with some islets, in the Pacific Ocean, 420 m. n.e. of the Fiji Islands; lat.  $13^{\circ} 30'$ — $14^{\circ} 20'$  s., and long.  $169^{\circ}$ — $173^{\circ}$  w. The three principal islands of the group are Sawaii (Pola), Upolu (Oyalava), and Tutuila (Mauna); of these, Sawaii, 40 m. long by 20 m. broad (pop. 13,201), is the largest. The area of the group is est'd 1,200-1,500 sq. m.; pop. (1872) 35,000; (1900) 38,412. These islands except one (Rose Island) are all of volcanic origin. For the most part they are lofty, and broken and rugged in appearance, rising in some cases more than 2,500 ft., and covered with the richest vegetation. The soil, formed chiefly by the decomposition of volcanic rock, is rich, and the climate is moist. The forests, which include the bread-fruit, the cocoa-nut, banana, and palm trees, are remarkably thick. The orange, lemon, taccá (from which a kind of sago is made), coffee, sweet potatoes, pineapples, yams, nutmeg, wild sugar-cane, and many other important plants, grow luxuriantly. Until recently, when swine, horned cattle, and horses were introduced, there were no traces among these islands of any native mammalia except a species of bat. The natives are well formed (especially the men), ingenious, and affectionate. The women, who superintend the indoor work and manufacture mats, are held in high respect. English and American missionaries have had much success here, and many of the natives have embraced Christianity; indeed all on Upolu are nominally Christian; but some of the firmer elements of character have not yet had time for development. The chief town is Apia, or Upolu.—For recent events, see APIA. In 1878 a commercial treaty was concluded with the United States; and in 1898-80 treaties granted to Germany and England the rights of the most favored nation, and conceded ports for the use of their navies. In 1889 the U. S., Gt. Brit. and Germany agreed to recognize the islands as neutral territory. By agreement 1899 the islands were divided between Germany and the U. S., the latter receiving in (1900) Tutuila and other small islands.

**SAMOITE**, n. *sám'ō-it* [after the *Samoa* Islands, where found]: mineral substance occurring as stalactites and stalagmites in a lava cavern. Hardness, 4 to 4.5; sp. gr. 1.7 to 1.9; lustre, resinous; color, white, grayish, yellowish. Its composition is essentially a hydrated silicate of alumina.

**SAMOS**, *sâ'môs* (mod. Gr. *Samo*; Turk. *Susam Adassi*): island in the Ægean Sea, about a mile off the coast of Asia Minor, in the Bay of Scalanova, about 45 m. s.s.w. of Smyrna. Its length is 27 m.; mean breadth about 8 m. A range of mountains, which may be regarded as an insular continuation of Mt. Mycale, on the mainland, runs through the whole island, whence its name—Samos, old Gr. word for any height in the neighborhood of the sea. The highest peak, Mount Kerkis (anc. *Cerceteus*), reaches 4,725 ft. S. is still, as

## SAMOSATENE—SAMOTHRACE.

in ancient times, well wooded. Between its e. extremity and the mainland lies the narrow channel of Mycale (called by the Turks the *Little Boghaz*), where, B.C. 479, the Persians were totally defeated by the Greeks under the Spartan Leotychides. Between the island and Nicaria (anc. *Icaria*), on the w. is the *Great Boghaz*, 3 to 8 m. broad, and much frequented by vessels sailing from the Dardanelles to Syria and Egypt. S. is well watered and very fertile, exporting grain, grapes, wine, oil, valonia, etc.; its mountains furnish quarries of marble. The present cap., Khora ('the town'), is on the s. side of the island, at the base of a hill (about 2 m. from the sea), on which ruins of the anc. acropolis (*Astypalaia*) are still visible. On the n. coast lies Vathy or Bathy, named from its deep [Gr. *bathys*] harbor.

Anciently S. was one of the most famous isles of the Ægean. At a very remote period, it was a powerful member of the Ionic Confederacy, and (according to Thucydides) its inhabitants were the first, after the Corinthians, who turned their attention to naval affairs. Their energy and resources were soon seen in the numerous colonies which they established in Thrace, Cilicia, Crete, Italy, and Sicily. But the celebrity of the island reached its acme under Polycrates (q.v.) B.C. 532, in whose time it was mistress of the archipelago. Subsequently, it passed under the power of the Persians, became free again after the battle of Mycale, stood by Athens during the Peloponnesian war, and after several vicissitudes became a portion of the Roman province of Asia B.C. 84. Its later history is but the melancholy record of continuous decay, nor till the rise of the modern Greeks against the Turks did it ever again acquire distinction. When the war of independence broke out, none were more ardent and devoted patriots than the Samians; and deep was their disappointment when, at the close of the sharp and brilliant struggle, European policy assigned them to their former masters. They are not, however, incorporated, so to speak, with the Turkish empire, but are semi-independent, being governed by a Fanariot Greek, who bears the title Prince of Samos, and pays tribute to the Porte. Pop. (1882) 39,108; (1890) 44,661; (1900) 54,834.

**SAMOSATENE**, n. *sām'o-sa-tēn* [L. *Samosateni*—from Samosata (now Sempscat), on the Euphrates, cap. of Commagene]: in chh. hist., a follower of Paul of Samosata (q.v.). The sect was called also Paulianists.

**SAMOTHRACE**, *sām-o-thrā'sē*, or **THRACIAN SAMOS**, *thrā'shi-an sā'mōs* (mod. Gr. *Samothraki*): island in the n. of the Ægean, n.e. of Lemnos (*Stalimene*). It is a rugged and mountainous mass, about 8 m. long by 6 m. broad, towering to the height of 5,240 ft., and forming the loftiest land in the whole Greek archipelago. The traveller on the plains of Troy can see its white summit shining afar in the n.w. over the intervening hills of Imbros—which recalls Homer's representation (*Iliad*,

## SAMOVAR—SAMPHIRE.

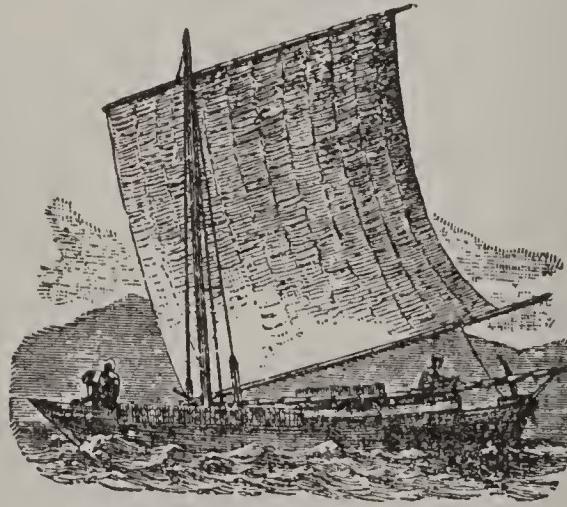
xiii. 12) in which he makes Poseidon watch from his Samothracian throne the events of the Trojan war. The island has not a single good port, whence Pliny calls it ‘the most harborless of all isles’ (*importuosissima omnium*), but there are some good anchorages. Its history is unimportant, its inhabitants are few and poor, and all the interest attaching to it is derived from its connection with the mysterious and gloomy worship of the Cabeiri (q.v.). There is no record of any modern traveller visiting S. in modern times, till 1858, when Conze fully explored it. Pop. 5,000, almost all Greeks.

**SAMOVAR**, n. *sām'ō-vār*: Russian tea-urn.

**SAMOYEDES**, *sām-oy-ēdž'*: Ural-Altaic race widely spread over the extreme n. of e. Europe and of Asia; one of the four families of the great Altaian stock. Originally, the S. inhabited the whole vast Siberian plain from the Altai to the Arctic Sea; but for many hundred years Mongolian peoples have forced themselves in among them. Their chief seat at present is the region between the Obi and the Yenisei. They have been very little influenced by Russian civilization or Christianity, retain in great measure their old manners and customs, and live by fishing, or rearing reindeer. The most important researches concerning their ethnographic and linguistic relations have been made by Castren (q.v.).

**SAMP**, n. *sāmp* [an Amer.-Indian word]: in *Amer.*, bruised maize boiled and eaten with milk.

**SAMPAN**, n. *sām'pān*: in *China*, a canoe or boat.



Sampan, Canton River.

**SAMPHIRE**, *sām'fir* or *-fér* [supposed corruption of F. *Saint Pierre*, St. Peter], (*Crithmum*): genus of plants of nat. order *Umbelliferæ*; having compound umbels, and an oblong fruit, rather flattened at the back, with five winged ridges, and many *vittæ* spread all over the seed. COMMON S. (*C. maritimum*) is a perennial, native of Europe, growing chiefly on rocky cliffs near the sea. Its radical leaves are triternate; those of the

## SAMPLE.

stem have lanceolate and fleshy leaflets. The stem is about  $1\frac{1}{2}$  ft. high, the flowers yellow. S. makes one of the best of pickles, and is also used in salads; it has a piquant, aromatic taste. It is generally gathered where it grows wild, but is sometimes successfully cultivated in beds of sand, rich earth, and rubbish, occasionally supplied with a little salt.—*Inula Crithmoides*, perennial plant, allied to Elecampane (q.v.), and of nat. order *Compositæ*, native of the sea-coasts of England, is



*Common samphire (Crithmum maritimum).*

used in the same way as S., and is often called GOLDEN SAMPHIRE.—The young shoots of *Salicornia herbacea* (see GLASSWORT) also are substituted for it as a pickle, and sold under the name MARSH SAMPHIRE. In this country it is sometimes known as samphire, and is common on the coast and interior salt-marshes. It is 6–12 in. in height, leafless, fleshy, jointed, like several other species, and is much eaten by cattle.

SAMPLE, n. *sām'pl* [a corruption of Eng. *example* or *ensample*: L. *exemplum*, a model (see EXAMPLE)]: a specimen; a part shown as evidence of the quality or character of the whole; example: V. to put up or take specimens of; to show something similar; to match. SAMPLING, imp. : N. the act of taking small quantities of wines, spirits, etc., or of merchandise from the bulk, from the docks or bonded warehouses, to exhibit them for sale. SAM'PLED, pp. -*pld*. SAM'PLER, n. -*plēr* [L. *exemplar*, a pattern]: a specimen; a piece of ornamental needle-work formerly done by girls for improvement. SYN. of 'sample, n.' : specimen; example; instance; illustration.

## SAMPSON—SAMSHOO.

**SAMPSON**, *samp'son*, DEBORAH: 1760, Dec. 17—1827, Apr. 29; b. Plympton, Mass. Under the name of Robert Shurtleff she enlisted in the revolutionary war, and served with great credit for three years. While sick with brain fever her sex was discovered by the surgeon. After her discharge she married Benjamin Gannett of Sharon, Mass. Congress gave her a pension and a tract of land. Her army life is described in *The Female Review*, which she published 1797 (new ed. 1866).

**SAMP'SON**, EZRA: 1749, Feb. 12—1823, Dec. 12; b. Middleborough, Mass. He graduated from Yale College 1773, was settled as pastor of the Congl. church at Plympton, Mass., 1775, removed to Hudson, N. Y., 1796, was one of the editors of *The Balance* 1801–03, edited the *Connecticut Courant* 1804, and was a contributor to its columns for many years. He became judge of Columbia co., N. Y., 1814. He published *The Historical Dictionary* (1804); *The Brief Remarker on the Ways of Man* (1817, 55); and other works. He died at New York.

**SAMPSON**, WILLIAM THOMAS, American sailor; b. 1840, Feb. 9—1902, May 6, in Palmyra, N. Y.; graduated from the U. S. Naval Academy at Annapolis, 1861. He was commissioned as "master" to the frigate *Potomac*, and in 1862 promoted to lieutenant, serving on the sloop *John Adams* until 1864, when he was stationed at Annapolis. During 1864–5 he served on the *Patapsco*, then attached to the South Atlantic blockading squadron, and was on board that vessel when she was sunk in Charleston harbor, 1865, Jan. From 1865 to 1867 S. served on the *Colorado*, flagship of the European Squadron, and returned to the Naval Academy (1868), where he remained till 1871. He received his commission as lieutenant-commander 1866, July 25, and as commander 1874, Aug. 9, serving at the time on the European station. He commanded the *Swatara* of the Asiatic Squadron in 1880, and returning in 1882 was appointed assistant superintendent of the Naval Observatory in Washington and later (1886) superintendent of the Naval Academy, a post which he retained till 1890. His other appointments have been: Chief of Ordnance Bureau, 1893–97; commander of the U. S. S. *Iowa*, 1897; President of the Board of Inquiry into the cause of the destruction of the U. S. S. *Maine* in Havana harbor (q.v.) 1898, Feb. 15. On the declaration of war between the United States and Spain S. was ordered to command the North Atlantic Squadron, with rank of acting rear-admiral, being advanced to the full rank 1898, Aug. 10. Commanding his own and Commodore Schley's squadron at Santiago, he was, however, present only during the last part of the engagement with Cervera's fleet, which was fought by Schley as second in command. He was commander of the Boston navy yard, 1899–1901; on 1902, Feb. 9, was retired.

**SAMSHOO**, or **SAMSIIU**, n. *sâm'shô* [Chinese]: Chinese spirit distilled from rice.

## SAMSON—SAMSON'S POST.

SAMSON, *sām'son* (Heb. *Shimshon*, compare *Shemesh*, sun): Hebrew champion: b. in Zorah in the tribe of Dan; son of Manoah. For 20 years he was 'Judge' over the s.w. tribes of Israel—perhaps only of Dan: his period is not certain, whether previous to Eli, or (more prob.) contemporaneous with him; he died prob. abt. B.C. 1115. The title 'Judge' appears to have been bestowed in recognition of his daring and extraordinary exploits against the neighboring Philistines, who at his birth held a great part of Palestine tributary. There is in the whole account of his deeds no sign of any superior authority vested in him. The narrative is almost wholly local, not dealing with the wider sphere of Israel. His life is surrounded by a marvellous halo from birth to death. To his mother, long barren (cf. Gen. xviii. 10, I Sam. i. 2, etc., Luke i. 7, etc.), there appeared an angel, who promised her a son on the condition that he should become a Nazarite. He is born; and goes forth on a life full of exploits of physical strength, though with small manifestation of intellectual or moral force; and in his death he destroys more of the hated Philistine oppressors than in his life. He shows no serious religious purpose, nor does his nation receive through him, as through the other 'Judges,' any great deliverance. S. may be a type of the Israel of his day—scarcely conscious of its national life or of its divine vocation—yet serving to fill its low place in the long historical sequence. S. may thus illustrate the power of *faith* in even its lower sphere and in even its less worthy operations in which it is limited by the unspiritual semi-brutish nature with which it has to deal.

Whatever theory may be adopted regarding the miraculous works ascribed to S. (and commentators have been ingenious in methods for explaining these), the tendency of modern scholarship is to reject at least the theory that the whole story is a popular myth and that S. was not a real person; also the attempt to identify him with the Tyrian sun-god Baal-Shemesh (or Hercules). It is deemed possible, however, that some of the stories of Hercules may have been derived through the Phoenicians from the history of Samson. Altogether, he is too human ever to have been an allegory or a parable, the moral of which would, indeed, hardly be perceptible. He appears in Scripture as a man of blemished type, but doing exploits under the animation of an unyielding patriotic purpose, which purpose had its place in the comprehensive divine plan of the Hebrew history.

SAMSON'S POST, n. *sām'son'z pōst* [*Samson*, the ancient champion of Israel against the Philistines, renowned for his great strength, and *post*]: in a *ship*, a strong wooden upright post or pillar in the centre of the hold, resting on the keelson.

## SAMUEL.

**SAMUEL**, *sām'ū-ēl* (Heb. *Shemuel*, heard by or asked from God): the last *Shofet* or Judge of Israel, the 'first of prophets,' founder of the schools of prophets, and mediator of the transition from the Judges to the monarchy in Israel: conjecturally about B.C. 1137–1058; b. among the hills of Ephraim; son of Elkanah, and of Hannah, a woman of no ordinary gifts, and almost a Nazarite herself, who dedicated the long yearned-for child to the Lord even before his birth. Elkanah was of Levitic descent, living, however, not among his own tribe, but in Ephraim. S., brought up in the sanctuary at Shiloh, under the eyes of Eli, there received his first prophetic call, and from that time his prophetic mission was decided. For about 20 years from the death of Eli and his sons, we hear nothing of S. The first public manifestation of his assumption of the office of judge is his convoking an assembly at Mizpeh, and routing, at the head of the people, the Philistines—his first and probably his only military achievement. Dwelling in his own native city of Ramah, where he had erected an altar, he annually went 'on circuit' to the three principal sanctuaries w. of the Jordan—Bethel, Gilgal, and Mizpeh—there to instruct and judge the people, and break them from their idolatrous habits, to which they were wont to yield, in imitation of the peoples around them. For the needed reformation he organized special schools of teachers and prophets, which seem to have formed colonies (Naboth, Bethel, Gilgal, Jericho), and to have moved about in large numbers. These fraternities were destined to take an important place in the commonwealth, and to exercise the greatest influence on the internal as well as the external affairs of the state, while they were the teachers of the people, expounding and developing the Mosaic law, and keeping the sacred traditions alive within the houses and hearts of Israel.

The peace that S. had restored—for during his lifetime the harassing raids from neighboring heathen had entirely ceased—and the happy use that he made of the peace by consolidating the religious institutions and the internal power and union of the people, must have impressed the people with the advantage of being ruled by a firm and capable head and hand. It would have been easy for S. to have procured for himself an election as king of Israel; but the establishment of a dynasty appeared to him contrary to the theocratic character of the law. When, however, his two sons, Joel and Abiah, whom he had installed provisional or supplementary judges, 'turned aside after lucre, and perverted judgment,' and the complaints of the people were loud against them, S. was pressed by its representatives who foresaw a time of terrible anarchy and lawlessness at his approaching demise; and he was obliged to yield to the general wish of installing a king to judge them 'like all the nations': see JEWS: SAUL. For the further events of S.'s life, see DAVID. As to

## SAMUEL.

his character, we cannot but see in him one of the wisest, most sagacious, unselfish, patriotic heroes. He was, doubtless, severe and energetic in the extreme, following the path that seemed to him indicated by Jehovah as the only one leading to the common welfare in an age of barbarism, brutality, superstition, and of a paganism world-wide and seductive, threatening the total absorption of the one nation that worshipped the living God. Gifted with both the spiritual and worldly supreme power over the people, at a time when they had neither political unity, nor laws, nor a *cultus*, he succeeded in rousing the public spirit, in uniting all the tribes under one banner, and in shaking off the Philistine yoke. He routed idolatry, and raised, by the institution of prophetic schools, the Mosaic religion to the highest eminence, forming also by these schools a healthy counterpoise to priestcraft. That on finding Saul negligent to certain dicta of the law, whose preservation had been the sole reason for his election, S. casts aside all personal love and fear, and to save Israel and keep its constitutions intact, chooses a more worthy head for the commonwealth, is not more than was the duty and the natural action for this most zealous champion for Jehovah's commands. The people themselves gave him the most honorable testimony for his uprightness and justice, and later ages place him side by side with Moses.

S. seems, after having anointed David, to have retired from public activity, and to have lived in comparative seclusion at Ramah. The period of his judgeship is not given; and his age at death is not easily calculated—being variously conjectured between 60 and 90 years. He was buried at Ramah, and his tomb is still shown at Nebi Samwil, though, according to Jerome, his remains were removed, under Emperor Arcadius, to Thrace. All Israel mourned him as they had mourned none since Moses.

SAM'UEL (SHEMUEL), BOOKS OF : two canonical books of the Old Test.; forming originally one work, but by the LXX. and Vulg. (followed by the recent Hebrew editions since Bomberg), and the Authorized Version, divided into two books, the first closing with the death of Saul. They are named from Samuel, the principal figure in them. He not only stood as the spiritual and temporal head of the commonwealth, but he also anointed Saul and David, and exercised an important influence on their rule. The narrative, beginning with the high-priesthood of Eli, concludes with the death of David; thus three principal periods are noticeable—1. The restoration of the theocracy, of which Samuel assumes the leadership (I. i.—xii.); 2. The history of Saul's kingship till his death (I. xiii.—xxxii.); 3. David's reign (II.).

The plan of the whole work is to depict the development of the theocracy from the end of the period of Judges to the end of David's reign, its humiliation and

## SAMYDACEÆ—SANAA.

its glory under Samuel and David, whose history is, in portions, told with biographical minuteness. As to the composition and unity of the books, criticism has been busy and ingenious; but scholars have prevalently inclined to see in them not a loose compilation from a number of stray sources, but a consecutive narrative drawn from ancient and authentic documents. The character of the narrative itself, occasionally dwelling at large on biographical episodes, occasionally assuming the brevity of a mere chronicle, and at times repeating itself at length, is quite in accordance with ancient Semitic historiography. It has been supposed by some that the books of Samuel were composed by the same hand that wrote the books of Kings, but they belong to a much earlier period. The author appears to have lived after the separation of the kingdoms, but long before the Exile, the language being remarkably pure, and quite free from late forms and Chaldaisms. The author may probably have been a prophet of the time of Solomon. The Talmudical notion of Samuel's authorship has been rejected by the critics, as inconsistent with the contents and circumstances of the book. There are glosses in the book due to later hands. Of sources, only the 'Book of Jashar' is mentioned in the work. The author, if he did not use real annals of the kingdom, which were only begun under Solomon, had, at all events, a certain number of prophetic narratives of Samuel's, Saul's, and David's lives and doings before him. As regards the occasional verbal agreement between S. and Chronicles, often commented on, we may assume either that the latter drew on the former, or that they both—which is more probable from internal evidence—drew on the same source, and modified their accounts according to their special tendencies. Altogether, the work bears the character of authentic record. Of modern commentators, see Hensler, Königsfeldt, Thenius, Ewald; also, *Critical and Experimental Commentary*, by Jamieson Fausset, and Brown; and in J. P. Lange's *Commentary*, the vol. on S., by Philip Schaff.

SAMYDACEÆ, *sām-i-dā'sē-ē*: natural order of oxogenous plants, tropical trees or shrubs, mostly American. The order contains about 80 known species, generally characterized by astringency in bark and leaves. Some are used in medicine, for poultices of wounds, lotions for ulcers, etc. The foliage of *Casearia esculenta* is eatable.

SAN: see ZOAN.

SANAA, *sā-nā'*: principal district in Yemen or Arabia Felix, corresponding to anc. Sába, or Sheba, the land of the Sabaeans (q.v.). Its extent is very undefined, but it may be taken to include the country round the capital bearing the same name, to a distance of half a day's journey on the w., n., and e.; and on the s. bounded by the Teháma and the districts Láhej and Yáffa.

While the dynasty of the Imáms existed, their sway

## SANABLE—SANATORIUM.

extended over a much greater space, sometimes, indeed, over the whole of Yemen. Gradually it was encroached upon by the Sheikhs, who had been subject or tributary to them, and by the Turks. A bad government brought intestine strife; on the death of each sovereign, the succession was disputed, until at length the very shadow of regular govt. has passed away. 1872, July, S. was again occupied by the Turks, who afterward overran the greater part of Yemen.

The city of Sanaa, former cap. of the Imáms of Yemen, is a deep and beautiful valley, 20 or 30 m. long, 6 or 7 m. wide, 4,000 ft. above sea level (pop. estimated —city 20,000, valley 70,000). This valley is bounded e. by a high range of mountains called Jebel Nikkuni, and is studded throughout its length with large villages.

The city and its suburbs are surrounded by high walls; and, including the gardens, the circumference is about five and a half m. The houses are of brick, well and strongly built, and most of them furnished with fountains, while the palaces of the Imáms approached magnificence. The Jews, of whom even now there are about 20,000, have a quarter to themselves, about half an hour's walk from the Mohammedan town; it contains many buildings, once the abode of affluence and ease, now bearing signs of the devastation by the savage and fanatical Mohammedans of the city. The city walls are of unburned brick, and mounted with cannon, but they are in a very bad condition. There are four gates and at both e. and w. end a castle containing a palace in the Saracenic style with extensive gardens round them, and constructed with a view to defense, but now utterly neglected. See YEMEN.

SANABLE, a. *sān'a-bl* [L. *sanab'īlis*, that can be healed, curable—from *sanārē*, to heal—from *sanus*, sound, healthy] : that may be healed or cured. SAN'ABIL'ITY, n. *-bil'i-ti*, or SAN'ABLENESS, n. *-bl-nēs*, the state of being sanable; curableness. SAN'ATIVE, a. *-tīv*, having the power to cure or heal. SAN'ATIVENESS, n. *-nēs*, the power of healing. SAN'ATORY, a. *-tér-i* [It. *sanatorio*, sanatory, healing] : healing; curing.

SAN'ATO'RIUM, n. *-tō'rī-ūm*, a health-station, especially among hills; a resort for invalids—incorrectly spelt SANITARIUM. Note.—The spelling *sanitary* is often used in the same sense as *sanatory*, but improperly. Though both are derived from the Latin, *sanārē*, to heal, *sanatory* properly signifies ‘conducive to health,’ and is applied to curative measures, after health is lost, while *sanitary* has the more general sense of ‘pertaining to health,’ and is applied to preventive measures. See SANITARY.—SYN. of ‘sanable’: healable; curable; remediable.

## SAN ANTONIO.

SAN ANTONIO, *sân ân-tō'ñi-ō*: city, cap. of Bexar co., Tex.; on San Antonio and San Pedro rivers, and on the Southern Pacific, the International and Great Northern, and the San Antonio and Aransas Pass railroads; 80 m. s.w. of Austin, 250 m. n. by w. of Brownsville; 36 sq. miles. It is in a plain, near a range of limestone hills from which excellent building material is taken; is supplied with water from the springs at the head of San Antonio river; lighted by gas and electricity; has valuable water power; and, beside important manufactures, has a large interior and Mexican trade. Both rivers run through the city and are spanned by several iron and wooden bridges. The part between the rivers is known as the American quarter; that e. of the San Antonio river as the Alamo or German quarter; and that w. of the San Pedro river as Chihuahua or the Mexican quarter. The American quarter contains the principal public and business buildings; the German the most attractive residences; and the Mexican many adobe houses of early days, and streets retaining their former Mexican and Spanish names.—In 1902 the city had a net public debt of \$2,000,000; the assessed valuation of all taxable property was \$34,000,000; tax rate \$1.68 on \$100. There were 9,851 children of school age, of whom 7,800 were enrolled in the public schools; 12 public school buildings; 135 teachers; and school property valued at \$330,000. The principal buildings were the new U. S. Custom-house and Post-office on Alamo Plaza, the City-hall on the Milit. Plaza; Rom. Cath. cathedral, two convents, hospital, and female orphan asylum; opera-house; public high school; St. Mary's College (Rom. Cath.); St. Mary's Hall (Prot. Episc.); Ursuline Acad. (Rom. Cath.); and several hotels. Here also is a U. S. milit. reservation (200 acres) and the headquarters of the dept. of Texas. In 1902, Sept., there were 5 national banks (cap. \$825,000), and 6 priv. banks; and 4 daily, 8 weekly, and 2 monthly periodicals. The chief manufactures were flour, beer and ale, cotton-seed oil, meat extract, and artificial ice; and the principal trade commodities were agricultural products, live-stock (particularly horses), wool, and hides.

S. A. was founded by the Spaniards for a milit. post 1714, and four years afterward Franciscan missionaries established here the mission of the Alamo. Subsequently both the fortification and the mission were removed from their original site on the right bank of San Pedro river to the left bank. The new mission building was so stoutly constructed that it served as a fort during the struggles of the Texans for re-establishment of the constitution of 1824 and for independence. It was the scene of a treacherous massacre of Texan patriots by order of the Mexican Santa Anna 1836, Mar. 6, and its ruins are now cared for by the city. S. A. was the cap. of Tex. under both Spanish and Mexican govts.; and was incorporated as a city 1873. Pop. (1870) 12,256; (1880) 20,550; (1890) 37,673; (1900) 53,321.

## SAN BENITO—SANBORN.

SAN BENITO, n. *sān bē-nē-tō* [Sp. *sambenito*—from *saco*, a sack or loose garment; *benito*; L. *benedictus*,



Various Styles of San Benito.

blessed]: a short linen dress, painted with demons, put over those condemned to the flames by the Inquisition.

SAN BERNARDINO, *sān bēr-nār-dē-nō*: city, cap. of San Bernardino co., Cal.; on the California Central and the California Southern railroads; 60 m. e. of Los Angeles. It is supplied with water from artesian wells at such elevation that streams can be thrown from hydrants over the top of the highest building; has 3 hotels, large public park, public library, several churches, 4 public schools, opera-house, asylum for the insane (building 1891), 4 flour-mills, 2 planing-mills, and iron foundry; and is lighted with gas and electricity. 1902, Sept., there were, 1 national bank (cap. \$100,000), 1 sav. (cap. \$10,000), 1 state, and 1 private; and 2 daily and 2 weekly periodicals. S. B. is recommended to persons with lung or throat affections. Pop. (1880) 1,673; (1890) 4,012; (1900) 6,150.

SANBORN, *sān'bērn*, FRANKLIN BENJAMIN: born Hampton Falls, N. H., 1831, Dec. 15. He graduated from Harvard College 1855, soon became a member of the Mass. state board of charities, was one of the founders of the Clarke Institution for Deaf Mutes, and was prominent in reorganizing the state methods of dealing with children and insane people who were objects of its charity. He was one of the founders of the Amer. Social Science Assoc. and of the Concord Summer School of Philosophy. He was an earnest abolitionist before the civil war. For many years he has been an editorial contributor to the *Springfield Republican*. He has published *Life of Thoreau* (1882); *Life and Letters of John Brown* (1885); and a large number of reports.

## SANBORN—SANCHUNIATHON.

**SANBORN**, KATHARINE ABBOTT (pen name **KATE SANBORN**): born Hanover, N. H., 1839. She was a teacher in several seminaries, prof. of English literature in Smith College for some years, and has been a newspaper correspondent in New York. She has delivered many lectures, edited calendars, and published *Home Pictures of English Poets* (1869); *Wit of Women* (1886); *A Year of Sunshine* (1887); and other works.

**SAN CASCIANO**, *sân kâ-shâ'no*: city of central Italy, province of Florence, 10 m. s.w. of the city of Florence. It is well built. The lands belonging to it produce a very strong wine, highly prized in Italy, also, grain, oil, fruit, and mulberries. Pop. abt. 6,800.

**SAN CAR'LOS**: see CAMPINAS.

**SANCHO**, n. *sâng'kô* [etym. not apparent]: instrument of the guitar species, made of hollowed wood and furnished with a long neck. It is strung with the tough fibres of a creeping plant. It is tuned by means of sliding rings.

**SAN CHRISTOBAL**, *sân krês-tô'vâl*: city of Mexico, cap. of the state of Chiapas; about 285 m. s.e. of Vera Cruz, 450 m. s.e. of the city of Mexico. The town, founded 1528 as Villa Real, has since been called S. C. de los Llanos, and Ciudad Real; but since 1829 has been known as San Christobal. It is the see of a bishop. Las Casas having been its first bishop, it has sometimes been called San Christobal las Casas. S. is in a fertile valley near the e. base of the Cordillera. Its principal industries are cattle raising, beef packing, the weaving by hand of coarse cotton and woolen goods, and manufacture of earthenware. There are mines of iron and lead in its vicinity. Pop. about 12,000.

**SANCHUNIATHON**, *sân-kô-nî'a-thon* (**SANCHONIATHON**, or **SOUNIAITHON**): the supposed author of a Phoenician history of Phoenicia and Egypt, called *Phoinikika*. He is conjectured to have been a native of Berytus; and the accounts which speak of him as born at Sidon or Tyre, probably take these cities in their wider sense for Phoenicia itself. Our principal information about him is from Philo of Byblus, Greek writer of the beginning of the 2d c., who translated S.'s history into his own tongue; but both the original and the translation are lost, except a few small portions of the latter, preserved by Eusebius, who uses them as arguments in a theological dispute against Porphyry. According to Philo, S. lived during the reign of Semiramis, Queen of Assyria, and dedicated his book to Abibalus, King of Berytus. Athenæus, Porphyry, and Suidas, on the other hand, speak of him as an ancient Phoenician, who lived 'before the Trojan war.' There is also discrepancy between the various ancient writers respecting the number of books in the *Phoinikika*. Orelli (1826) and after him C. Müller (1849) published the remaining fragments of S.; and the hot discussion of their genuineness and value has not yet ceased. Several critics

## SANCHUNIATHON.

went so far as to deny the existence of a S. According to some (Lobeck, etc.), it was Eusebius; according to others (Movers, etc.), Philo, who fathered his own speculations upon an ancient authority. Philo was actuated, Movers thinks, partly by the desire of proving that the whole Hellenistic worship and religion was simply a faint imitation of the Phœnician; partly by the desire of lowering the value of the Old Test., by showing the higher authority of the Phœnician writer; and partly, as was the fashion among the unbelieving philosophers of his age, to bring the popular creed into bad repute, by proclaiming his own views under the guise of an ancient sage. Yet even those who deny the authenticity of S. agree in allowing the fragments current under his name a certain intrinsic value, since they are founded on real ancient myths. This is now (with more or less modification by different investigators, Ewald, Bunsen, Renan, etc.) the prevalent opinion. Ewald contends for the real existence of a S., in which he is supported by Renan. Even if there never was a S., it was not Philo who forged him. There seems no doubt that we have but a very dim and confused reproduction of what, after many modifications, misunderstandings, and corruptions, finally passed the hands of Philo and Eusebius, and was by Eusebius, as we said, quoted in a theological disputation. Yet, even if the reality of a S. be assumed, his period—and he insists on a very remote date indeed—must be placed much lower: into the last centuries before Christ, at the earliest. S. would then, it seems, have endeavored to stem the tide of Greek superiority in all things, by collecting, grouping, and remodelling the ancient and important traditions of his own country, and thus proving to both his countrymen and to the Greeks their high importance, in comparison with the Greek productions, on the field of religion and philosophy.

The *Phoinikika* appears to have been not only a cosmogony, but also a history of the author's nation and the surrounding nations; and like similar ancient histories, it began probably with the creation of the world, and contained an account of the Jews. All the historical parts, however, are lost, and nothing remains but a fragmentary cosmogony, or rather two or three different systems of cosmogony, or, according to Movers, merely an Egyptian and Phœnician patchwork, for a brief account of which see PHœNICIA. One of the chief difficulties for us consists in the Phœnician words of S., which Philo either translated too freely, or merely transcribed so faultily in Greek characters as to render them an everlasting puzzle.

Eusebius further contains a fragment of a treatise by S., *Peri Judaiōn*, but it is doubtful whether this is the work of Philo of Byblus or of S.; and if of S., whether it is a separate work, or merely a separate chapter out of his larger work. A forgery, said to contain the whole nine books of S., and to have been found by a Portu-

## SANCROFT.

guese, Col. Pereira, at the convent of St. Maria de Merinhao, and to have been by him intrusted to a German corporal in Portuguese service, named Christoph Meyer, was published by Wagenfeld (Bremen 1837), and transl. into German (Lübeck 1837), but was very soon consigned to disgrace and oblivion by Movers, K. O. Müller, and Grotfend, the last of whom had at first not only believed in its genuineness, but even written a preface to the *editio princeps*. There never was such a convent or such a colonel; but the fac-simile taken by 'Pereira' in the convent in Portugal was found to have been written on paper showing the water-marks of an Osnabrück paper-mill.

SANCROFT, *sāng'kroft*, WILLIAM, D.D.: English archbishop, historically notable as the most distinguished dignitary among the *Non-jurors* (q.v.): 1616, Jan. 30—1693, Nov. 24; b. Fresingfield in Suffolk. He was educated at the grammar-school of Bury St. Edmunds, and at Emmanuel College, Cambridge; and 1642 was elected fellow of his college, but in the following year was deprived of his fellowship by the Puritans for refusing the famous 'Engagement'; after which he went abroad. On the restoration of Charles II., S., after several preferments, was in 1677 raised, against his inclination, to the first dignity in the church—the archbishopric of Canterbury. In his ecclesiastical duties he was commendably faithful. He attended King Charles II. on his death-bed, and earnestly exhorted the once 'merry monarch' to repentance for his past life. In 1688, with several other bishops, he was committed to the Tower by James II., for sending him a petition explaining why they could not conscientiously order his Declaration of Indulgence to be read in the churches. In the events which immediately preceded and accompanied the great Revolution, he acted an ambiguous and perplexing part. At first he refused when James asked him to sign a declaration expressing abhorrence of the Prince of Orange's invasion. Later (1683, Dec.), he even joined in an address to William favoring a free parliament and due liberty to the Prot. dissenters; yet he seems from this point to have drawn back, and to have fallen under the dominion of his theory of the Divine Right of Kings. He was not present at the convention of the lords spiritual and temporal to meet the new monarch, and after the settlement, he refused, with seven other bishops, to take the oath of allegiance to the govt., in consequence of which he was suspended by act of parliament, 1689, Aug. 1. He left Lambeth 1691, June 23, retiring to his native village, where he died. See Macaulay's *History of England*, II., III., IV.

## SANCTIFICATION—SANCTION.

SANCTIFICATION, in Protestant Theology: process, in which, as distinct from justification, the Holy Spirit renews man in the divine image, destroying within him the power of evil, and quickening, educating, and strengthening in him the life of goodness and holiness. Whereas justification is considered as a judicial act on the part of God's free grace, liberating the sinner from condemnation, declaring him just, absolving and pardoning him once for all, S. is reckoned a work or process, advancing in various stages of weakness or strength, and completed only in the future life of the believer when removed beyond the influences of sin that now surround him. In Rom. Cath. theology, this distinction between the initiative of the divine life in man (justification) and its progressive development (sanctification), is not maintained, at least in the same precise and logical manner that it has been advocated by Protestants. By the latter, the distinction has long been held of first-rate importance in their theological systems, and no less so in their practical conception of the Christian life: and the two are doubtless to be discriminated; but in recent Christian thought such distinctions are not drawn out to extreme accuracy, not being deemed so important to the modern biblical as in the older philosophical theology.

SANCTIFY, v. *sāngk' tī-fī* [F. *sanctifier*—from mid. L. *sanctificārē*, to sanctify—from L. *sanctus*, holy; *facio*. I make]: to make pure or holy; to purify from sin; to set apart for sacred use; to hallow. SANC'TIFYING, imp.: ADJ. tending or adapted to increase holiness; purifying from sin; setting apart for sacred uses. SANC'TIFIED, pp. -*fīd*: ADJ. set apart for sacred services; consecrated. SANC'TIFICA'TION, n. -*fī-kā' shūn* [F.—L.]: act of making holy; the work of God's grace, by which men are gradually purified in their thoughts and affections; the state of being purified (see below). SANC'TIFIER, n. -*ér*, he that makes holy; the Holy Spirit. SANC'TIFYINGLY, ad. -*lī*.

SANCTIMONIOUS, a. *sāngk' tī-mō' nī-ūs* [L. *sanctimōnia*, sacredness—from *sanctus*, holy: It. *santimonia*; OF. *sanctimonie*, sacredness]: affecting the appearance of sanctity; saintly; holy; devout. SANC'TIMO'NIously, ad. -*lī*. SANC'TIMO'NIousNESS, n. -*nēs*, the appearance of sanctity or devoutness. SANC'TIMONY, n. -*mō-nī*, devoutness; holiness; the appearance of sanctity.

SANCTION, n. *sāngk' shūn* [F. *sanction*—from L. *sanctio* or *sanctiōnem*, a decree, sanction—from *sanctus*, holy]: a confirming or giving authority or validity to; ratification; authority; influence or custom: V. to ratify or confirm; to give authority to; to countenance or support. SANC'TIONING, imp. SANC'TIONED, pp. -*shūnd*.—SYN. of ‘sanction, n.’: authority; authorization; countenance; support; ratification; confirmation; probation.

## SANCTITY—SANCTUARY.

SANCTITY, n. *sāngk'ti-tī* [L. *sanctitas* or *sanctitatem*, holiness—from *sanctus*, holy]: state of being sacred or holy; purity; holiness; goodness; the being inviolable or solemnly binding, as an oath. SANC'TIES, n. plu. -*tī-tīz*, in *OE.*, saints; holy beings. SANCTITUDE, n. *sāngk'ti-tūd* [L. *sanctitudo*, sacredness]: in *OE.*, holiness; goodness.—SYN. of ‘sanctity’: holiness; piety; godliness; goodness; purity; sacredness; solemnity; devotion; religiousness.

SANCTUARY, n. *sāngk'tū-ér-ī* [F. *sanctuaire*—from mid. L. *sanctūārium*, a sanctuary—from L. *sanctus*, holy]: a holy place; a place consecrated for the worship of the Deity; in a *Rom. Cath. Chh.*, the part around the altar inclosed by a balustrade: *formerly*, a sacred asylum beyond the reach of the civil power (see below); hence, shelter; protection. SANC'TUARIZE, v. -*tū-ar-īz*, in *OE.*, to shelter by means of sacred privileges. SANC'TUARIZING, imp. SANC'TUARIZED, pp. -*īzd*.

SANC'TUARY: formerly a consecrated place giving protection to a criminal taking refuge there; or the privilege of taking refuge in such a consecrated place. Among the Jews, there were cities of refuge to which the slayer might flee who killed a man unawares, and something analogous to a right of sanctuary may be traced in pagan communities also. In the ancient Greek states the temples, or at least some of them, afforded protection to criminals, whom it was unlawful to drag from them, though the food which was being supplied might be intercepted. As early as the 7th c., the protection of S. was afforded to persons fleeing to any church or certain boundaries surrounding it. The canon and more ancient ecclesiastical law recognizes this protection to criminals for a limited period, to give time for composition for the offense, or for the first heat of resentment to pass. In England, about 30 churches including Westminster Abbey, became prominent as refuges, and in several there was a stone seat beside the altar where those fleeing to the peace of the church were held to be safe. One of these still remains at Beverley, and another at Hexham. To violate the protection of this seat, or of the shrine of relics, was an offense too grave to be compensated by a pecuniary penalty. Connected, in England, with the privilege of S. was the practice of *abjuration of the realm*. By the ancient common law, if a person guilty of felony took the benefit of S., he might, within 40 days afterward, go clothed in sackcloth before the coroner, confess his guilt, and take an oath to quit the realm and not return without the king's license. On confessing and taking the oath, he became attainted of the felony, but had 40 days allowed him in which to prepare for his departure, and a port assigned him for embarkation, to which he must immediately repair with a cross in his hand, and embark with all convenient speed. If he failed to depart, or if he returned without license, he was con-

## SANCTUM.

demned to be hanged, unless he happened to be a clerk (cleric), in which case he was allowed the *benefit of clergy*.

By the ancient canons of the Scottish councils, excommunication was incurred by the offense of open taking of thieves out of the protection of the church. Some churches, however, by their superior sanctity, were held practically to afford a much surer asylum than others, and it was not uncommon for the Scottish kings, with the view of strengthening the hands of the church, to give a formal sanction to particular ecclesiastical asylums. One of the most celebrated sanctuaries in Scotland was the church of Wedale, now called Stow, where was an image of the Virgin believed to have been brought by King Arthur from Jerusalem. A very remarkable right of S. in Scotland, the *privilege of Clan Macduff*, was alleged to have been granted by Malcolm Canmore on recovering the throne of his ancestors. Any person related within the ninth degree to the chief of Clan Macduff, who should have committed homicide without premeditation, was entitled, on fleeing to Macduff's Cross in Fife, to have his punishment remitted for a fine, or at least to be repledged from any other jurisdiction by the Earl of Fife. There is evidence of this privilege having saved Hugh de Arbuthnot and his accomplices from being proceeded against for the murder of John de Melvil of Glenbervie, 1421.

While the institution of S. often enabled criminals to defy the civil power, it was frequently a protection to the innocent from oppression or private enmity pursuing them under the name of law. In rude and unsettled times it operated beneficially by throwing the control of society into the hands of the clergy, who were less tempted than any other class to misuse that power. But as the civil power and authority of the law were strengthened, the right of S. became useless and mischievous; the civil power endeavored to narrow the privilege as far as possible, while the church sought hard to preserve it. The English Reformation, though it greatly restricted, did not abolish S. It was not till 1534 that persons accused of treason were debarred the privilege, and S. for crime was finally abolished 1624; but various precincts in and about London continued to shelter debtors until 1697.

In Scotland, the time-honored S. for debtors, practically obsolete since abolition 1880 of imprisonment for debt (see DEBT), is the Abbey and Palace of Holyrood, with its precincts, including the hill of Arthur Seat and the Queen's Park. The S. affords no protection to a criminal, a fraudulent debtor, or a crown debtor.

SANCTUM, n. *sāngk'tūm* [L. *sanctus* or *sanctum*, holy]: a sacred place; a private retreat or room, as an editor's *sanctum*. SANCTUM SANCTORUM, *sāngk-tō'rūm* [L. the holy of holies]: the most holy place. SANC'TUS, n. *-tūs*, anthem in the Eucharistic service, originally beginning with the L. word *sanctus*, holy: see TERSANCTUS.

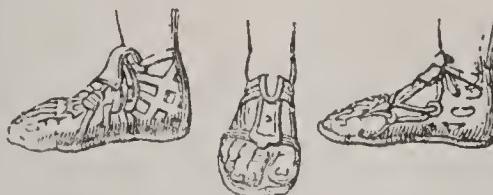
# SAND.

**SAND**, n. *sand* [Icel. *sandr*; Dut. *zand*; Ger. and Dan. *sand*]: various shells, stones, and other substances reduced to powder or fine particles, usually by the action of water, found in the beds of seas, rivers, and within the earth (see **QUICKSAND**): V. to sprinkle with sand. **SAND'ING**, imp. **SAND'ED**, pp.: ADJ. covered with sand; in *OE.*, barren; sandy in color; short-sighted. **SANDS**, n. plu. *sāndz*, a desert tract of land consisting mostly of sand; extensive tracts exposed by the ebb of the tide. **SANDY**, a. *sānd'i*, consisting of sand. **SAND'INESS**, n. *-i-nēs*, the state of being sandy. **SAND-BAG**, a bag filled with sand (see **SAND-BAGS**). **SAND-BANK**, a flat mound of sand of a greater or less extent, on the shore or in the sea, particularly one on a coast or at the mouth of a tidal river causing obstruction to sea-going vessels. **SAND-BATH**, a covering for vessels that are to be heated without coming into direct contact with the fire. **SAND-BLIND** [a corruption of *OE. sam-blind*, half-blind: AS. *sam*; L. *semi*, half]: partially blind. **SAND-BOX**, a box for sand. **SANDBOX-TREE**, S. Amer. evergreen tree (see **HURA**). **SAND-DRIFT**, a heap or hillock of sand formed by the force of the wind (see **LAUNCE**). **SAND-EEL**, a small fish that can dart into the sand. **SAND-PAPER**, paper made rough with sand or pounded glass, for smoothing and polishing—made in the same way as emery paper (see **EMERY**). **SAND-PILLARS**, the sand-storms of desert tracts, like those of the Sahara and Mongolia, in allusion to their whirling and pillar-like form in their onward march. **SAND-PIPES**, or **SAND-GALLS**, cylindrical or pipe-like hollows, which occur in chalk-rocks, and which are usually filled with sand, gravel, and clay from above. They descend perpendicularly into the chalk at right angles to the surface, tapering downward and ending in a point; they reach occasionally a depth of 60 ft., and have a diameter varying from 1 to 12 ft. They are produced probably by the chemical action of water, charged with carbonic acid, which exists more or less in all rain-water, especially in water that has been in contact with decaying organic matter. **SANDPIPER**, a name applied to various grallatorial birds, including the greenshank, redshank, etc. (see below). **SAND-SCRATCHES**, in *geol.*, rocks or rock-surfaces worn smooth, or marked with scratches and furrows, owing to sand being carried over them by the wind. **SAND-STONE**, stone composed of consolidated sand (see below). **SAND-STORM**, a storm of sand. **SANDWORT** (see **ARENARIA**). **SANDERLING**, n. *sān'dér-ling*, small wading bird, so-called because it obtains food by searching the moist sands of the sea-shores (see below). **SAND OF LIFE IS RUN**, life has passed away, in allusion to the sand of the hour-glass. **TO NUMBER SANDS**, to enter on an endless or impossible task.

**SAND, GEORGE**: see **DUDEVANT. AMANTINE LUCILE AURORE**.

## SANDAL—SANDAL-WOOD.

SANDAL, n. *sān'dal* [F. *sandal*—from L. *sandalium*; Gr. *sandalion*, a sandal: It. *sandalo*]: kind of shoe, consisting of a sole fastened to the foot, with a hollow part to embrace the ankle, and fastened by straps—leaving the upper part of the foot uncovered—worn by the ancient Greeks and Romans; a loose low shoe or slipper;



Sandals.

a strap or band for securing a shoe to the foot (see SHOES). SAN'DALLED. a. -*dald*, wearing sandals; shaped like a sandal. SANDALIFORM, a. *sān-dāl'i-fawrm* [L. *forma*, a form]: sandal-shaped.

SANDAL-WOOD, n. *sān'dal-wūd* [Ar. *sandal*: Skr. *chandana*]: wood of several species of the genus *Santalum*, of nat. order *Santalaceæ* (q.v.), natives of the E. Indies and tropical islands of the Pacific. S.-W. is compact and fine grained, very suitable for work-boxes and small ornamental articles, and remarkable for its



Sandal-wood (*Santalum album*).

fragrance, which, being fatal to insects, adapts S.-W. to cabinets for specimens in natural history; but it is much too expensive for general use. The odor is due to an essential oil, heavier than water. WHITE S.-W., the most common kind, is the product of a small tree (*Santalum album*), native of mountains in s. India and the Indian Archipelago; much branched, resembling myrtle in its foliage and privet in its flowers. The trunk is seldom more than a foot in diameter. YELLOW S.-W. is probably from another species, perhaps *S. Freycinetianum* of the Indian Archipelago and Sandwich Island; and from these regions the Chinese import it,

## SANDALWOOD.

chiefly for burning in their temples and in their houses: they reduce it to sawdust, and mix it with paste before burning. A species of *Santalum* (*S. Yasi*) has been found to yield the much-valued S.-W. of the Fiji Islands, where the tree has been almost extirpated by the demand for its wood in commerce.

RED S.-W., or SANDERS, is the product of a very different tree, *Pterocarpus santalinus*, of nat. order *Leguminosæ*, sub-order *Papilionaceæ*, native of tropical Asia, particularly of the mountains of s. India and Ceylon. The tree is about 60 ft. high, with pinnated leaves, having generally three leaflets, and axillary racemes of flowers. The heart-wood is dark red, with black veins, and so heavy as to sink in water. It is used as dye-stuff, also by apothecaries to color certain preparations. The Arabs use it as an astringent, and it is the basis of some tooth-powders.—A deep red dye is yielded also by the chips of *Adenanthera pavonina*, tree allied to the *Acacias* (q.v.), native of the E. Indies, whose wood is sometimes called RED SANDAL-WOOD.

SAN'DALWOOD (or SUMBA, *sūm'bā*, or JEENDANA, *jēn-dā'nā*) ISLAND, called by the natives Tjindana, Sumba, and Tanah Tjumba: island in the Indian Ocean, between  $9^{\circ} 18'$ — $10^{\circ} 20'$  s. lat. and  $118^{\circ} 58'$ — $120^{\circ} 43'$  e. long.; about 120 m. long, greatest breadth 60 m.; 4,966 sq. m. The coast is steep and rocky, so that, except at the w., s., and e. corners, ships can approach quite near. The produce consists chiefly in dye-woods, ebony, timber, cotton, rice, pepper, cocoa, maize, coffee, sugar, wild cinnamon, cocoa-nuts, and various fruits. Little sandal-wood is exported, though abounding in the forests, the natives refusing to cut the trees, which they believe to be the dwellings of their ancestors' souls. Exports are: horses, timber, cotton, pepper, wax, tortoise-shell, tow made from bark, maize, and edible nests. The cliffs swarm with the *Collocalia esculenta*, and collecting the nests is a leading occupation of the men. The Sandalwood Islanders belong to the Malay race, are well made, wiry, and of brownish complexion. The most trifling causes lead them to commit suicide, a crime rare in other parts of the archipelago.—The island is nominally subject to the Netherlands, but the rajahs and regents are almost independent. The principal havens are at Nangamessi on the n., and Tida, about the middle of the s. coast, good anchorage being found in many other parts. Notwithstanding the repressive measures taken by the Netherlands govt., and the destruction 1860 of ten vessels engaged in the slave-trade, it is still extensively carried on by these islanders.—Pop. of island about 1,000,000.

## SANDARAC—SANDBAGS.

SANDARAC, or SANDARACH, n. *sān'da-rāk* [L. *sandarāca*: Gr. *sandarakē*, a red pigment—from Skr. *śindūra*]: friable, dry, almost transparent, tasteless, yellowish-white resin, imported from n. Africa. It is completely soluble in oil of turpentine, but not completely soluble in alcohol. When heated or sprinkled on burning coals, it emits an agreeable balsamic smell. It



Sandarach (*Callitris quadrivalvis*).

exudes from the bark of the S. tree (*Callitris quadrivalvis*), native of n. Africa, of nat. order *Coniferae*.—The quantity of S. used is not great; it is employed mostly for the same purposes as Mastic (q.v.). The finely-powdered resin is rubbed, as *Pounce*, into the erasures on writing-paper, after which the paper may be written on again without the ink spreading.—The wood of the S. tree is highly balsamic and odoriferous, extremely durable and valuable.

SANDAY, *sān'dā* (or SANDA, *sān'da*) ISLAND: one of the most northern of the Orkney (q. v.) group; pop. (1881), 2,082.

SANDBACH, *sānd'bāch*: small market-town of Cheshire, England; 25 m. e.s.e. of Chester by railway; on an eminence on the right bank of the Whealock. The people are employed mostly in silk-throwing, and in making salt and shoes. Pop. (1881) 5,493; (1891) 5,824.

SAND'BAGS, in Military Works: canvas bags 28 or 30 inches long, 14 to 16 broad; filled with sand or earth, and forming ready means of extemporizing a parapet or traverse against the enemy's fire; they are used likewise for protecting the head of a trench, or tamping the charge in a mine: see MINES, MILITARY. As lining for embrasures or barbettes, sandbags are covered with raw hides to prevent them from taken fire.

## SAND BLAST—SANDCRACK.

**SAND BLAST**: method of engraving, cutting, or boring glass, stone, metal, or other hard substances, by the percussive force of a stream or jet of sharp sand, driven either by a blast of steam from a boiler, at pressure of 50 to 300 lbs. per square inch, or by an air blast from a fan blower revolved at high velocity, say a 30-inch fan revolving 1,500 to 2,000 times per minute. A hopper supplies the sand, through a tube with a fine orifice, and inclined at any desired angle. The steam or air-blast pipe surrounds this sand tube, with the effect of carrying the sand against the object to be operated on, at almost the velocity of the blast. The cutting force is such as easily to reduce diamond, bite into steel, cut through or carve deep patterns in granite, marble, or other hard stones. A chief use of the S. B. is for obscuring, engraving, and ornamenting glass. The effect on a metal surface, with a low degree of force, is that of a fine, uniform, pitted appearance; and the process is much used for frosting plated goods. The original patent of Gen. B. C. Tilghman, 1870, Oct., was greatly improved, 1884, by Matthewson's device for sweeping away, by an ingenious exhaust arrangement, all the steam of the blast, leaving only cool, dry sand to do the work.

**SAND'CRACK**: splitting or fracture of the horny fibres of a horse's hoof, extending usually from above downward; when reaching to the quick it causes lameness, and in all cases unsoundness. Horses with thin, weak, brittle feet, spoilt by much rasping, and rattled on the hard roads, furnish the majority of cases. The horn must be thinned for an eighth of an inch on either side of the crack; across the upper and lower ends of the crack, to prevent its extension, the firing-iron should be drawn, making a line nearly through the horny crust. The opening may further be held together by winding round the foot several yards of waxed string or fine iron wire. Except in very bad cases, slow work on soft hand may be permitted, but road work is injurious. The growth of healthy horn is promoted by applying round the coronet, at intervals of ten days, some mild blistering liniment.

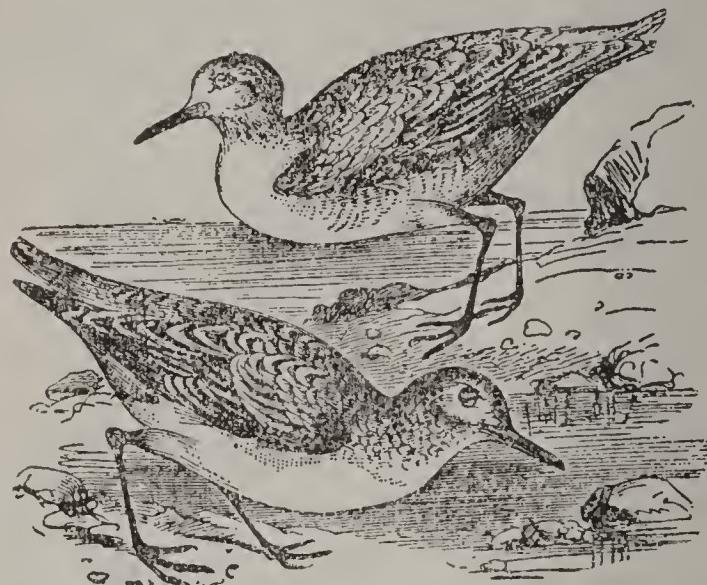
## SANDEMANIANS.

SANDEMANIANS, *sān-dē-mā'ni-anz*, or GLASSITES, *glās'īts*: religious sect, originating in Scotland about 1730, when its founder, John Glas, native of Auchtermuchty, in Fife, and minister of the parish of Tealing, near Dundee, was deposed by the gen. assembly of the Church of Scotland, chiefly for views which he had published concerning the nature of the kingdom of Christ. In his *Testimony of the King of Martyrs concerning his Kingdom*, founded on the words of Christ (John xviii., 36, 37), Mr. Glas maintained that all national establishments of religion are inconsistent with the true nature of the church of Christ, and was thus probably the first assertor of the *Voluntary principle* in Scotland. He also advocated a system of church-govt. essentially *Independent* or *Congregational*. After his deposition by the gen. assembly, he became pastor of a congregation. His personal worth and piety were acknowledged even by his most strenuous opponents. A number of small congregations or *churches* were soon formed on *Glassite* principles, not only in Scotland, but in England and America; but both in England and America, the name of a follower of Glas, Robert Sandeman, prevailed over his own, and the sect received the name of *Sandemanians*. ROBERT SANDEMAN (1718-71, b. Perth) studied at Edinburgh, was in the linen trade, joined the church of Mr. Glas, and was appointed elder. Removing to London 1760, he gathered a large congregation whose members were called Sandemanians. He came to America 1764, gathered a church in Boston, and one in Danbury, Conn., where he settled 1765. Sandeman is known chiefly from his advocacy of certain views respecting the nature of saving faith, essentially representing faith as 'a bare belief of the bare truth,' which belief, however, both Glas and Sandeman, with at least their immediate adherents, regarded as the fruit of Divine grace and the work of the Holy Spirit. The S. have since the beginning of the 19th c., decreased in numbers. In 1851, there were only six Glassite churches in Scotland, none of which contained very many members; and at the same date only six Sandemanian churches existed in England. There are very few in the United States. The S. maintain the necessity of a plurality of teaching *elders* in every church, but do not require any special education for this office, or separation from secular employments; they hold a second marriage a disqualification for it; they deem it unlawful to join in prayer with any one who is not a brother or sister in Christ; they observe the Lord's Supper weekly; they maintain *love-feasts* or dinners between morning and afternoon services, at which it is incumbent on every member of the church to be present; they are rigid in abstaining from things strangled and from blood; and in general hold by the most literal interpretation of other Scripture rules, as concerning the kiss of charity, and the washing of the feet of fellow-disciples; they disapprove of games of chance, and of all use of the lot except for sacred

## SANDERLING—SAND GROUSE.

purposes. Their charity, both to their own poor and to the poor of other denominations, is said to be exemplary. The great philosopher Faraday was a member of this sect.

SANDERLING, *sän'dér-ling* (*Calidris*): genus of birds of the snipe family (*Scolopacidæ*), and without a hind toe; otherwise resembling sandpipers. The Common S. (*C. arenaria*) is a very widely diffused bird, breeding



Sanderling, Male and Female (*Calidris arenaria*).

in the arctic regions, and migrating s. on the approach of winter as far as the coasts of Africa, of India, and of Brazil. It is only about eight inches long; its winter plumage very light ash-gray, under parts white, the head and back spotted, shoulders blackish-brown, the wing coverts and middle tail feathers bordered with white, and the rump with fine cross-lines. In spring the plumage acquires a reddish tinge with black markings. The S. feeds on marine worms, small crustaceans, etc. It is esteemed for the table.

SANDERS, *sän'dérz*, CHARLES W.: educator: 1805, Mar. 24—1889, July 5; b. Newport, N. Y. He was largely self-educated, taught school for many years, published a series of school books 1838, another series 1860, and many other educational works. He introduced singing into public schools, and with B. A. Russell and W. B. Bradbury compiled a series of juvenile music books. Some of his books were translated into other languages, and were largely used in Europe, S. America, and the W. Indies. Many million copies were sold in this country. He died at New York.

SANDERS, or RED SANDAL-WOOD: see SANDAL-WOOD.

SAND GROUSE: see GANGA.

## SAND-HILL CRANE--SANDHURST.

**SAND-HILL CRANE** (*Grus Canadensis*), misnamed *Brown Crane*: species belonging to the family *Gruidæ* of wading birds, and inhabiting N. America, observed especially in the s. and w. United States. It is of a plumbeous ashy color, lighter on the lower back, darker on the wings, with black legs, feet and bill, the sides of the lower mandible pale toward the end. It differs from the old world *G. cinerea*, which is similar in general color, but has a blackish face and neck. A well-stuffed specimen, not stretched, measured 44 in. in height; the bill  $5\frac{1}{2}$  in. from base to tip, on the culmen. The dagger-like bill is a formidable weapon of defense.

**SAND-HOPPER** (*Talitrus locusta*): small crustacean, of section *Edriophthalma* and order *Amphipoda*; so abundant on some sandy sea-shores that the whole surface of the sand seems alive with the hopping multitudes. This activity is not continuous; but if a mass of sea-weed left by the tide be turned over, countless sand-hoppers leap away, or they may be found by digging in the sand, in which they burrow. The S. leaps by bending the body together, and throwing it open with a sudden jerk. It feeds on almost any vegetable or animal substance, particularly on what is already dead and beginning to decay. It is itself the food of crabs, and of many kinds of birds.

**SANDHURST**, *sănd'hérst*: town of Victoria, 82 m. n.n.w. from Melbourne on the railway between Melbourne and Ebuca, former name BENDIGO. It is the centre of an important mining district of the Bendigo gold-fields. The mines in the S. district, comprising nearly 800 auriferous quartz reefs, give employment to about 7,000 men, of whom above 800 are Chinese.—Pop. of S. (1881) 28,128; (1891) with suburbs, 31,955.

**SANDHURST, ROYAL MILITARY COLLEGE**: institution for scientific education of Brit. army officers. The students—since the total remodelling 1871—are sub-lieutenants, who, having passed by competition for the army, spend a year at S., in acquiring the theoretical part of the war science. To be confirmed in the army as lieut., the officer must pass creditably out of S., and then serve a year on probation with a regt. The Staff College (q.v.) is a separate institution, about two m. distant.

## SAN DIEGO—SAND-MARTIN.

SAN DIEGO, *sân dē-ā'gō*: city, port of entry, and cap. of San Diego., Cal.; on San Diego Bay, and on the California Southern and the National City and Otay railroads; 450 m. s.e. of San Francisco; 71 sq. m. It is the seaport of s. Cal., and next to San Francisco has the largest and finest harbor on the Pacific coast of the United States. It is locally divided into the old town, some distance inland, and the new town which has sprung up directly on the bay since 1867. The climate is equable the year round, and free from heated seasons. Prior to the building of the new town the principal industry was cattle raising and the exportation of hides. Since 1869, fruit-raising has become the leading industry and large quantities of oranges, lemons, almonds, grapes, plums, and olives, are now cultivated for eastern shipment. Gold mining is successfully prosecuted 50 m. n. of the city. S. is beautifully laid out; well-drained: lighted with gas and electricity; supplied with improved water-works; horse, electric, and steam-motor street railroads; and has a public park of nearly 1,500 acres. During the year ending 1890, June 30, the imports were \$437,665; domestic exports \$247,606; foreign exports \$17,038. Of the imports \$282,126 were dutiable, \$155,539 non-dutiable, \$436,991 imported direct from foreign countries, \$414,239 entered for home consumption and \$23,426 for warehouse; \$135,574 were brought in land vehicles, \$55,362 in American steam vessels, \$119,469 in American sailing vessels, and \$126,969 in foreign sailing vessels. The entrances were: 167 American vessels of 55,917 tons, and 23 foreign of 23,850 tons. The imports of merchandise 1902-3, June, had a value of \$963,014; exports of \$168,993. In 1903 the net public debt was \$833,000; assessed real and personal valuations \$12,154,828; tax rate \$1.45 on \$100. 1902, Mar., there were 2 nat. bks. (cap. \$250,000), 3 sav. (cap. \$55,000), and 1 st. (cap. \$100,000), and 3 daily, 3 weekly, and 2 monthly periodicals. The city is connected by ferry with Coronado Beach, on the opposite side of the bay, which has a hotel that cost more than \$1,000,000. The bay of S. was discovered by Juan Rodriguez Cabrillo 1542; occupied and surveyed by Sebastian Vozciano 1602, Nov.; the first mission in the state was founded here by Francis Junifero Serra, 1769, July 16; the pueblo or municipality was organized 1835, Jan. 1; and the city received its first great impetus to growth 1867. Pop. (1880) 2,637; (1890) 16,159; (1900) 17,700.

SANDIVER, or SANDEVER, n. *sân'dî-vér*. [corrupted from F. *sel de verre*, salt of glass]: whitish-salt scum which forms on glass during its first fusion; glass-gall. It is powdered and used as polishing material.

SAND-MARTIN: see SWALLOW.

## SAN DOMINGO—SANDPIPER.

SÁN DOMINGO, *sân do-mēng'gō*, or SANTO DOMINGO, *sân'tō* (now the DOMINICAN REPUBLIC): eastern part of the island, of which Hayti is the western part; 18,000 to 20,000 sq. m.; pop. est. (1888) £10,000, mostly negroes or mulattoes. See HAYTI: DOMINICAN REPUBLIC.

As early as 1845 negotiations were begun, looking to its acquisition by the United States, and an American commissioner was sent to make exploration. Under Pres. Pierce, George B. McClellan, then capt., was sent to make a survey of Samana Bay, with a view to securing it as a U. S. naval station. His favorable report, and the negotiations which followed, led to no practical result. Nor did anything come from the visit made by Mr. Seward, sec. of state, and other officials, 1867. Early in Gen. Grant's first presidency, overtures toward annexation to the United States were made by the Baez govt. of S. D., and Grant sent Gen. O. E. Babcock to confer with it and arrange a treaty. In a message, 1870, May 31, to the senate, the pres. earnestly urged receiving S. D. as a terr. of the Union, on grounds of advantage to both countries. In S. D. the popular vote for annexation was 15,000 to 400 against; but in the U. S. senate it met with bitter opposition, through various personal and political complications, and was defeated. The pres. made a further effort by sending out, 1871, Benj. F. Wade, Andrew D. White, and Samuel G. Howe as a commission for thorough investigation. Their exhaustive favorable report on the resources, people, and public opinion of S. D., was laid before congress, but no action on it was taken. The S. D. govt. made fresh overtures 1874 without result.

SAN DO'NA: see DONA, SAN.

SAND'PIPER: common English name of a numerous group of birds, generally referred to the family *Scolopacidae*, all formerly included in the genus *Tringa*, but now, as occurring in the United States, belonging to seven genera, all of the sub-family *Tringenæ*. The name, however, is of wide, popular use, and is sometimes applied to small plovers and tattlers. There are 25–30 species, some common to both hemispheres. In characters and habits they all are very similar. They are not large; they are very active and graceful; plumage not gay, but pleasing and diversified in colors; legs rather long, lower part of the tibia naked; tail very short, wings moderately long; bill rather short and slender, grooved throughout the whole or a considerable part of its length, straight in some, and a little arched in others. The feet have three long toes before, and one short toe behind; the toes in the genus *Tringa*, as now restricted, are partially webbed at the base, in *Totanus* they are completely separate. They are good swimmers though not often seen swimming; they frequent sandy sea-shores, sometimes in numerous flocks in autumn and winter; and seek their food by probing the sand with their bills, and by catching small crusta-

## SANDPIPER.

ceans in pools or in the margin of the sea. Many are birds of passage, visiting far n. latitudes in summer, and spending the winter on s. coasts. The flesh of all the species is good, and some are in much request for the table. For the DUNLIN or PURRE (*Tringa variabilis*),



Redshank (*Totanus Calidris*).

see DUNLIN.—The KNOT (*Tringa canuta*), also known, in different states of plumage, as the RED S. and the ASH-COLORED S., is about ten inches in length, appearing in great flocks on N. Amer. and British coasts in winter. The LITTLE S. or LITTLE STINT (*Tringa minuta*), occurs in India and s. Africa. The name STINT is given to a number of species of *Tringa*.—The PURPLE S. (*Tringa maritimi*) is reckoned among the birds of



Common Sandpiper (*Totanus hypoleucus*).

Iceland, Greenland, Melville Island, Nova Zembla, and Spitzbergen.—Of the genus *Totanus*, to all the species of which the popular name GAMBET is sometimes given, one of the best known species is the REDSHANK (*Totanus Calidris*), a bird which resides in Britain all the year, but known also as a summer bird of passage in

## SANDROCOTTUS—SANDSCHAKI.

the most n. parts of Europe and Asia, and occurring in winter as far s. as Smyrna, and even in India: it is about 11 inches long, and has its name from its red legs.

The N. American species include the Least S. (*Tringa minutilla*), or Peep,  $5\frac{1}{2}$ –6 in.; the Pectoral S. (*T. maculata*); the White-rumped S. (*T. fuscicollis*); the Purple S. or Rock Snipe (*T. maritima*); the Black-bellied S. (*T. alpina*); the Red-breasted S. (*T. canuta*); the Spotted S. (*Tringoides macularius*); the Buff-breasted S. (*Tringites rufescens*); also the Bartram S., the Stilt S., and the Semi-palmated S.

SANDROCOTTUS, *sān-drō-kōl'tūs*, or SANDROKYPTOS, *sān-drō-kip'tos*: Greek spelling of the name of the Hindu king Chandragupta, of Pât'aliputra or Palibothra, to whom Megasthenes was sent as ambassador from Seleucus Nicator, and who lived about the beginning of b.c. 4th century.

SANDS, *sāndz*, BENJAMIN FRANKLIN: naval officer: 1811, Feb. 11—1883, June 30; b. Baltimore, Md. He became a midshipman 1828, served in the Gulf squadron in the war with Mexico, and 1848–51 commanded a brig near the African coast to aid in suppressing the slave trade, and was afterward with the coast survey and the bureau of construction. He was prominent in blockading operations in the civil war, and was supt. of the Washington naval observatory 1867–73. He was promoted commander 1855, capt. 1862, commodore 1866, rear-admiral 1871, and was placed on the retired list 1874. He died at Washington.

SANDS, JOSHUA RATOON: naval officer: 1795, May 13—1883, Oct. 2; b. Brooklyn, N. Y. He became a midshipman 1812, served under Com. Chauncey on Lake Ontario, and was in several engagements; was in the war with Mexico, and rendered brilliant service at various points, and 1851 was in command of the frigate which took the govt. exhibits to the world's fair at London. He aided, 1857, in laying the Atlantic cable, and afterward in suppressing the filibusters in Central America; was commander of the Brazil station 1859–61, and 1869–72 was port-admiral at Norfolk. He was retired, on account of age, 1861; promoted commodore 1862, and rear-admiral 1866. He died at Baltimore.

SANDSCHAKI, n. *sānd-shāk'i*, or SANDSCHAKI-SHERIF, n. *shēr-ēf*: lit., the standard of green silk, the sacred standard of the Mussulmans, 12 feet high, surmounted with a golden hand holding a copy of the Koran.

## SANDSTONE—SANDUSKY.

**SANDSTONE**: rock formed of compacted, and more or less indurated sand. It is formed by sedimentary deposit from water, of granules resulting from disintegration of older rocks by dynamic action, weathering, and erosion : grains of quartz, hardest of the older rocks, are most abundant ; after quartz come other minerals—felspar, mica, etc. S. is ‘fine,’ or ‘coarse,’ according to the size of the granules. The granules are usually held together by some cementing medium ; on the nature of this cement depend the strength, durability, and beauty of the stone.

Lithographically, the different kinds of S. are classed with reference rather to the cementing material than to the nature of the granules. In argillaceous sandstone the cementing material is clay : if such sandstone has not been subjected to metamorphosis, it decomposes quickly under the action of the atmosphere. Calcareous sandstone has for cementing material calcium carbonate : when the carbonate is present in great excess the stone is called siliceous limestone ; the action of acids in the atmosphere on limestone tends to produce disintegration. Ferruginous sandstone has for cementing material an oxide of iron ; hence its variety of color—pink, red, brown, and intermediate shades. In siliceous sandstone silica is the cementing material : it is usually hard, durable, capable of resisting great crushing force : consequently it is worked with difficulty. Freestone is a sandstone which works well in any direction. The terms ‘arkose,’ ‘conglomerate,’ and ‘breccia’ have special reference to the character of the granules present. Arkose is made up of the constituents of granitic rocks that have been disintegrated and reconsolidated ; and conglomerate is a sandstone in which the granules are rounded pebbles instead of small grains. When the fragments are angular instead of rounded, the stone is called breccia. ‘Quartose,’ ‘felspathic,’ and ‘micaeuous’ S. contain respectively the minerals indicated. See BUILDING STONE.

**SANDUSKY**, *sān-dūs'ki*: city, port of entry and cap. of Erie co., O. ; on Lake Erie at the mouth of the Sandusky river; and on the Baltimore and Ohio, the Cleveland Cincinnati Chicago and St. Louis, the Lake Erie and Western, and the Lake Shore and Michigan Southern railroads ; 61 m. w. of Cleveland. It has an excellent landlocked harbor ; is connected with Detroit, Toledo, Cleveland, and the Lake Erie islands by lines of steamboats ; does a large business in fresh fish (\$1,500,000 annually), fresh fruits (\$1,000,000), wine (2,000,000 gallons), and white and blue limestone and lime ; ships large quantities of coal, and has important manufactures. During the year ending 1890, June, imports were \$82,747 ; domestic exports \$102,685 ; 369 American vessels of 26,237 tons, and 338 foreign vessels of 53,336 tons entered the port. 339 American vessels of 26,060 tons, 340 foreign vessels of 53,847 tons cleared ; in 1902-3 the imports of merchandise were \$19,596 ; exports \$199,189.

## SAND-WASP—SANDWICH.

In the school year 1887-8 there were 5,982 children of school age (6-21 years) enrolled in the public schools, and 1,000 in private and parochial schools; 9 public school buildings; the most costly public high school building in the state; 62 teachers; school property valued at \$150,000. In 1900-1, the public schools had 74 teachers, 2,990 pupils enrolled; value property \$300,000. There are 20 churches, viz.: German Prot. 9; Rom. Cath. 4; Prot. Episc. 3; Bapt., Congl., M. E., Presb., 1 each. The streets are wide, regularly laid out with private and business houses generally of blue limestone; the water supply is from Lake Erie; there is thorough sewerage, and the city has efficient fire, police, gas and electric light, and street railroad service. In 1902, Mar., there were 3 national banks (cap. \$400,000) and 1 savings bank; and 2 daily, 5 weekly, and 1 monthly periodicals. Pop. (1880) 15,838; (1890) 18,471; (1900) 19,636.

**SAND'-WASP**: see **SPHEGIDÆ**.

**SANDWICH**, n. *sănd'wĭch* [so-called from an Earl of Sandwich]: two thin slices of bread with a thin slice of meat, seasoned with mustard, etc., between them. **SANDWICH-MAN**, *familiarly*, a man perambulating the streets with an advertisement-board both before and behind him.

**SANDWICH**, *sănd'wĭch* (i. e., village on the sands): cinque port, market-town, and municipal borough of Kent, England, on the right bank of the Stour, 98 m. e.s.e. of London by the South-Eastern railway. Within the last 800 years the sea has here considerably receded; for S., now two miles from the shore, is described, at the commencement of the 11th c., as the most famous of all the English harbors—*omnium Anglorum portuum famosissimus*. The town is rectangular, and was surrounded by walls, along which a broad path now leads. The streets are confined; and the houses, which seem crushed together, and whose architecture recalls the times of the Plantagenets, are peculiarly antique in appearance. The church of St. Clement's, with a low Norman tower, is probably the most interesting edifice. Small vessels importing timber, iron, and coal, and exporting corn, flour, malt, seeds, and hops, come up to the town. Tanning, shipbuilding, and seed-crushing are carried on. Pop. (1881) 2,846; (1891) 2,796. S. is about one mile s. of the remains of the anc. Richborough (Roman *Rutupiæ*), which decayed as the sea receded from its port, and S. took its place. S. is mentioned in 959, and was made a cinque port by Edward the Confessor. Thence till Richard II. it was the royal port for the navy, and had 90 ships. The harbor gradually silted up, but was improved 1847. At Richborough many Roman remains have been found.

**SANDWICH ISLANDS**: former name of the HAWAIIAN ISLANDS (q.v.).

**SANDY**: see under **SAND**.

## SANDY HOOK—SAN FELIPE DE ACONCAGUA.

SANDY HOOK, *sān'dī hūk*: peninsula below Lower New York Bay; near the n. point of which ocean steamers to and from New York are obliged to pass. It is about 6 m. long,  $\frac{3}{4}$  m. wide in its greatest breadth, and is largely covered with cedars. There are two light-houses on the Navesink Highlands, on the s. side of Sandy Hook Bay, and one about  $\frac{3}{4}$  m. from the n. end of the peninsula. S. H. is now the govt. testing-ground for heavy ordnance, and here are powerful harbor defense works known as Fort Hancock since 1895.

SANDYS, *sān'dis*, EDWIN, D.D.: Archbishop of York, and translator of the ‘Bishops’ Bible:’ 1519–88; b. Lancashire. He was educated at Cambridge, where he was proctor and master 1542–47; afterward vicar of Haversham, prebendary of Peterborough, and vice-chancellor of Cambridge. He was a prisoner in the Tower nearly 7 months, for having openly advocated the cause of Lady Jane Grey; escaping to the continent, he returned on the accession of Elizabeth, became bp. of Worcester, afterward of London, and subsequently abb. of York.

SAN'DYS, Sir EDWIN: writer, and promoter of the colony of Va.: 1561–1629; b. Worcester, England; son of the abb. of York. Educated at Oxford, he was an adherent of James I., and was knighted 1603. He was the most prominent officer and active member of the London company that founded Va., 1619–20, and instituted a representative system in the colony, with other wise measures that were pursued by his successor, when he himself had been removed from office by Spanish intrigue. He was author of *Europæ Speculum, or a View on Survey of the State of Religion in the Western Part of the World* (1637). He died in Northborne, Kent, England.

SAN'DYS, GEORGE: traveller and metrical translator: 1577–1644, March; b. Boxley Abbey, Kent, England; son of Abp. Edwin S. He was educated at Oxford, and travelled in Egypt, Mt. Sinai, Palestine, and s. Europe; published *Relation of a Journey* (1615); was treasurer of the colony of Va. 1621–24, where he established the first water-mill, ship-building and iron works; and wrote a spirited translation of Ovid’s *Metamorphoses* (pub. 1626). He translated also the 1st book of the *Aeneid*, and various books of Scripture. His volume of travels is instructive and elegant. Selections from his poetry were pub. by Rev. H. J. Todd 1839.

SANE, a. *sān* [L. *sānus*, sound in body, whole: It. *sano*; F. *sain*]: sound; not disordered; healthy; not disordered in intellect; of sound reason—the opposite of *insane*. SANE'LY, ad. *-lī*. SANE'NESS, n. *-nēs*, or SANITY, n. *sān'i-tē* [L. *sānitas*]: the condition or state of being of sound mind; soundness or healthiness of mind.

SAN FELE, *sān fā'lā*: town of s. Italy, province of Potenza, 17 m. n.w. of Potenza. Pop. 10,500.

SAN FELIPE DE ACONCAGUA, *sān fā-lē'pā dā ā-kōn-kā'gwā*: city, cap. of the Chilian dept. of Aconcagua; 60 m. e.n.e. of Valparaiso. Pop. 12,000.

## SAN FERNANDO--SAN FRANCISCO.

SAN FERNANDO, *sán fér-náñ'dó*: city of Spain, province of Cadiz, on the Isla de Leon,  $9\frac{1}{4}$  m. by rail s.e. of the city of Cadiz. It is a comparatively modern city, with straight streets, Calla Real, the finest, being more than a mile in length. S. F. has two parish churches, two hospitals, a school of navigation with an observatory and several convents. It is connected with the mainland by a bridge of boats, and a railroad bridge crosses the channel of Santi-Petri. Between S. F. and Cadiz are large salt marshes, from which great quantities of salt are made and exported; it also manufactures rum, liqueurs, leather, and soap. Pop., including the suburb of San Carlos, 2 m. distant, and naval arsenal of La Carraca about 29,000.

SAN FILIPPO D'ARGIRO, *sán fē-líp'po dár-jé'ro* (anc. *Agyrium*): one of the oldest towns of Sicily, Italy, in the province of Catania, near the Salso; about 36 m. n.w. of the city of Catania, 9 m. s.e. of Nicosia. It is the birth-place of the historian Diodorus Siculus. It has extensive marble quarries in its vicinity. Pop. (1890) 13,000.

SAN FRANCISCO, *sán frän-sís'kō*: consolidated city and co. in Cal.; on the e. side of a peninsula 6 m. wide and 20 m. long, separating San Francisco Bay from the Pacific Ocean; and on the Central Pacific, the Southern Pacific Coast, the San Francisco and Southern Pacific, the Northern Pacific Coast, and the Southern Pacific railroads; ranking in pop. among U. S. cities 9th (1880) and 9th (1900);  $41\frac{3}{4}$  sq. m. It is the principal seaport on the Pacific coast; has an excellent harbor, part of a bay 50 m. long and 5 m. wide, with entrance from the bay through the Golden Gate, which is 1 m. wide and 35 ft. deep at low tide; and has direct steamship-communication with China, Japan, Australia, Mexico, Central and S. America, Sandwich Islands, and the most important domestic coast-ports. Only one railroad has a terminus in the city, the Southern Pacific; the others connect with it by ferry from San Pablo Bay, on the n., and Oakland (q.v.), directly opposite, 7 m. distant, on the e. side of the bay. The area includes Goat Island, 2 m. e.; Alcatraz Island, 1 m. n.; and the Farallone islets, 24 m. w., in the ocean. The city is built on a number of rocky hills, some of which are 800 ft. above sea-level, with sand-dunes in the n.w., and intervening tracts made quite level by grading. The temperature is almost always cool from ocean breezes, but heavy fogs prevail in summer. Considering the inequalities of surface, the city is laid out quite regularly, with broad streets at right angles. The main thoroughfare is Montgomery street, which terminates n. in a hill inaccessible to vehicles, but reached by cable street railroad; fashionable promenades are Kearny and Market streets; the principal financial houses are on California street; importers and jobbers occupy Front, Sansome, and Battery streets; and the Chinese are restricted to Sacramento, Du-pont, Commercial, Jackson, and Pacific streets. The city is supplied with water from reservoirs in Pilarcites Valley, 20 m. s., where rain-water is collected and stored, and from

## SAN FRANCISCO.

artesian wells 120-160 ft. deep. It is well drained, and is lighted by gas and electricity. Formerly, through fear of earthquakes, buildings were erected principally of redwood, and covered with cement; but within a few years, brick and various stones have been introduced, and buildings are now extended to 6, 7, 8, and 10 stories, and display striking architectural improvement. The great pleasure-resort is Golden Gate Park, a beautiful tract 3 m. long, containing 1,050 acres, and liberally maintained by the city. The first cable road for street-car travel ever constructed was inaugurated in S. 1873. In 1890 there were 19 such roads, with 53 m. of track, besides horse-car roads.

In 1890 S. ranked 4th among U. S. ports of entry in value of merchandise imports. During the year ending June 30, the imports of merchandise were \$48,751,223; domestic exports \$35,962,078; foreign exports \$914,013; imports of gold bullion \$674,327, U. S. coin \$255,353, foreign coin \$3,821,902, silver bullion \$2,447,242, U. S. coin \$1,490, foreign coin \$820,535—total \$8,020,849; exports of gold bullion \$11,894, gold coin \$1,508,368, silver bars \$107,800, bullion \$4,080,852, coin \$1,650—total \$5,710,564. Of the imports of merchandise, \$16,410,-878 were dutiable, \$32,340,345 non-dutiable, \$44,919,462 imported direct from foreign countries, \$3,831,761 through exterior ports without appraisement, \$44,779,742 entered for immediate consumption, \$3,971,481 for warehouse. \$13,179,773 came in American steam-vessels, \$10,-742,589 in American sailing-vessels, \$15,635,142 in foreign steam-vessels, and \$9,192,114 in foreign sailing-vessels. During the year, 447 American vessels of 485,713 tons, and 363 foreign vessels of 544,825 tons (810 vessels, 1,030,538 tons), entered the port, and 447 American of 521,465 tons, and 379 foreign of 559,509 (826 vessels, 1,080,974 tons), cleared. There were 882 vessels of 299,641·42 tons registered, enrolled, and licensed at the custom-house, of which 657 of 180,784 tons were sailing-vessels, and 225 of 118,-839·42 tons were steam-vessels; 18 sailing and 13 steam vessels were built; 3,606 immigrants (including 1,712 Chinese) were landed; and the receipts at the custom-house were nearly \$8,000,000.

In 1880 S. had 2,971 manufacturing establishments, employing \$35,368,139 capital and 28,442 hands, paying \$14,928,534 wages and \$47,978,072 materials, and yielding products valued at \$77,824,299. The chief industry, according to capital employed, was manufacture of foundry and machine-shop products, which had 58 establishments, 1,921 hands, \$2,391,739 capital, paid \$1,243,234 wages, used \$2,017,267 in materials, and returned \$3,889,-503 products. Next was printing and publishing, 152 establishments, 1,527 hands, \$1,744,755 capital, \$1,217,349 wages \$1,015,305 materials, and \$2,987,576 products. Then followed cigars and cigarettes, 147 establishments, 3,418 hands, \$1,687,603 capital, \$911,988 wages, \$1,929,357 materials, and \$3,720,813 products; ship-building, 56 establishments, 349 hands, \$1,681,523 capital, \$393,283 wages, \$463,-069 materials, and \$1,087,843 products; malt liquors, 38 es-

## SAN FRANCISCO.

tablishments, 813 hands, \$1,666,520 capital, \$404,830 wages, \$1,507,284 materials, and \$2,722,270 products; slaughtering and meat-packing, 24 establishments, 309 hands, \$1,586,200 capital, \$239,868 wages, \$4,511,721 materials, and \$6,013,602 products; tanned leather, 47 establishments, 268 hands, \$1,161,800 capital, \$166,754 wages, \$1,530,298 materials, and \$2,014,345 products; men's clothing, 110 establishments, 1,715 hands, \$1,126,164 capital, \$908,559 wages, \$2,204,148 materials, and \$3,782,963 products; and boots and shoes, 310 establishments, 2,744 hands, \$1,090,772 capital, \$1,199,730 wages, \$2,187,811 materials, and \$4,141,547 products. The census returns for 1890 showed 4,059 establishments, employing \$74,834,301 capital and 48,446 persons; paying \$30,979,374 for wages, \$78,656,470 for materials, and \$8,322,483 for miscellaneous expenses; and having an output valued at \$135,625,754. The principal industries, with the capital investment, were: Sugar and molasses refining, \$5,509,965; foundry and machine shop products, \$4,787,785; malt liquors, \$4,376,501; printing and publishing, \$2,591,782; ship building, \$1,784,548; cigars and cigarettes, \$1,729,975. In 1900 there were 4,002 manufacturing establishments, employing \$80,103,367 capital and 41,978 persons; paying \$22,037,527 for wages and \$79,492,952 for materials used; and yielding products valued at \$133,069,416.

The city had a total bonded debt, 1902, July, of \$250,000, and held \$232,862 in sinking funds, making the net debt \$17,138. The assessed valuations for 1902-3 were: Real estate \$288,426,113, personal property \$131,542,531, total \$419,968,614; and the total tax rate was \$16.08 per \$1,000, of which \$12.26 was for city and county purposes. Taxes levied 1902-3 aggregated \$6,753,935, and comprised \$5,159,655 for city and county purposes, and \$1,604,280 for state purposes. The railroad assessment, \$376,710, was in addition to the above total. Sources other than taxation were estimated to yield \$1,386,000. The city and county together owned property valued at \$29,106,000, principally parks and public squares (\$13,000,000); city and county buildings (\$7,500,000); and public school property (\$5,500,000).

The merchandise exports to foreign countries 1901-2, were valued at \$40,434,870; total exports by sea \$45,140,198; exports of treasure by sea and land \$15,177.755; value of exports to Europe, \$15,480,067; to China, \$5,879,319; value of wheat exported \$10,000,000; of flour \$4,000,000; value of foreign imports \$35,362,941; custom house collections, \$7,467,424. The vessels entering from foreign ports numbered 949, tonnage 1,602,787; cleared 878, tonnage 1,483,151. The ocean-going fleet included 65 steamships and 15 schooners. The city is the leading whaling port of the world, employing 21 vessels. Trade with China, Japan, and the Philippines is rapidly increasing.

Bank clearances 1901-2, aggregated \$1,342,927,204. In 1902 there were 5 national banks, capital \$6,200,000, and circulation outstanding, \$4,199,800; loans and dis-

## SAN FRANCISCO.

counts, \$20,947,532, and surplus, \$4,061,553. The commercial banks had assets of \$104,237,344, and the savings banks, assets, \$149,278,500; and deposits, \$138,193,443. State, out of state, and foreign fire insurance companies wrote total risks of \$734,653,598 in the year.

Local and suburban transit 1895 was provided by 8 lines of cable, trolley, steam, and horse railroads, operated on 255·83 m. of track, the principal line being the Market street railway, which controlled 186·18 m. of track and used each of the above kinds of motive power. The streets were lighted by 430 electric arc lights on masts, and by 5,100 gas lamps. Water for domestic and fire purposes was supplied by gravity from the reservoirs of the Spring Valley waterworks, whose mains extend all over the city. The streets were paved principally with basalt blocks, cobble stones, bituminous rock, and macadam, and cement or concrete sidewalks prevail everywhere. In the business thoroughfares, bitumen laid on a concrete foundation was rapidly taking the place of cobble stones and basalt blocks. Much attention was being paid to local improvements, and in 1895 seven of the public squares were beautified with graveled walks, lawns, and shrubbery. Over 125 m. of streets had been improved at public expense, and the harbor commissioners had planted a large portion of the e. side of East street, the broad thoroughfare along the water front, with cork elm and palms. The chief credit for recent public improvements was attributed to the number and influence of local improvement societies.

The attractions of the city include the Golden Gate Park, of 1,040 acres, in which a midwinter exposition was held 1894; Laurel Hill cemetery; the site of the old Cliff House, destroyed 1895, and to be replaced by a more substantial structure; City Hall (cost \$4,500,000); United States Branch Mint; the S. F. Stock Exchange; the Merchants' Exchange; the Palace hotel (\$7,000,000); the Fairmont hotel; the Baldwin hotel (\$3,500,000); Bank of California and the First National Bank; Mercantile Library; Odd Fellows' Hall; Mechanics' Institute; California Market; Academy of Sciences (\$400,000); among office buildings, the Crocker (cost, \$1,000,000) and the Mills (cost \$1,500,000); the Mission Dolores, built of adobe in 1778; the Mark Hopkins Art Institute; the James Lick monument in City Hall square; the Cooper Free Medical College; the Lane Free Hospital; and the plant of the Union Iron works, where the cruiser *Charleston*, the battleship *Oregon*, and other vessels of the new navy were built.

The religious interests of the city are represented by 155 churches and missions, the most notable of which are St. Ignatius' Church and College (Rom. Cath.); St. Mary's Cathedral (Rom. Cath.); the synagogues of Emanu-El, Beth-Israel, and Sherith-Israel; Grace, Trinity, St. John's and Advent churches (Prot. Episc.); First Congl. Church; the First and the Columbia Square churches (Bapt.); Calvary (Presb.); First Methodist; the Chinese Mission House, on Sacramento street; and several Chinese Joss Houses.

Public, private, and denominational educational insti-

## SAN FRANCISCO.

tutions are numerous, well-sustained, and of high-grade. Near the city are the Univ. of Cal. (at Berkeley) and the Leland Stanford, Jr., Univ. (at Palo Alto). The public school pupils enrol. 1902 num. 35,940; those in private school 10,212; value public school property, \$6,227,400. There were 80 public-school buildings; 4 public high schools, with a normal department in the girls' school; 14 endowed academies and other private secondary schools; 3 commercial colleges; Cogswell Polytechnic College; S. F. Training School for Nurses; Cal. Medical College (Eclectic); Cooper Free Medical College (Regular); Hahnemann Hospital College (Homœopathic); and the law, medical, dentistry, and pharmacy colleges of the University of California.

Charitable and benevolent institutions include the State Asylum for the Deaf, Dumb, and Blind (at Oakland); City Hospital; State Woman's Hospital; Children's Hospital; St. Mary's Hospital (Rom. Cath.); Prot. and Rom. Cath. Orphan Asylums; U. S. Marine Hospital; and Almshouse.

The harbor of S. F. is one of extreme strategic importance, and has many places where modern fortifications could be judiciously erected. There is a United States navy-yard at Mare Island and a United States Arsenal at Benicia. The federal govt. has made a beginning toward providing the city with adequate works of defense, having installed a battery of 3 dynamite guns, the largest in the world, at the Presidio in 1895, Dec., and the coast defense bills in congress 1895-6 called for \$7,000,000-\$8,000,000 for guns and fortifications here.

S. F. was first permanently occupied 1776, Oct. 9, by establishment of a milit. post by the Spaniards, and the mission of San Francisco de Asis by two Franciscan monks, who had devoted themselves to missionary work among the Indians. This mission was remarkably successful from the start, and by 1825 was widely known for its wealth. Others were started from it; and all prospered till 1834, when the Mexican authorities seized them, and placed them under civil administration. Remains of the first mission, sometimes called the Mission Dolores, are matters of present curiosity and interest. The village of Yerba Buena (good herb) was established on the site of S. F. 1835, and streets and town lots were laid out 1839. In 1846 U. S. naval authorities took possession of the region, and in the following year the town council changed its name to San Francisco. The discovery of gold 1848 partially depopulated it, but during 1849 it became noted as a seaport. Between 1849, Dec. 24, and 1851, June 22, the city (incorporated 1850) had 5 great fires, which destroyed property valued at \$16,000,000, and left the place in almost complete desolation, owing to the frail construction of its buildings. These fires led to the erection of more substantial buildings, and induced merchants to store their stock beyond daily needs in vessels anchored in the harbor. In 1851 the lawlessness of many of its people forced the orderly ones to organize for mutual pro-

## SAN FRANCISCO BAY—SANG.

tection against murder, arson, and other crimes. Vigilance committees were formed, who assumed the execution of criminal laws, and, by out-terrorizing the desperadoes, gave the city peace. The same course was adopted 1856, May—Sep., with beneficial results. In 1854 the city began feeling the reaction of the gold excitement. The falling off in mining products caused much distress and led to 5 years' business depression, after which the opening of new and richer fields, particularly the famous Comstock lode, and the beginning of the development of various state and local industries, restored business activity and confidence. In 1856 the city and co. were consolidated; 1869 a panic was precipitated by injudicious speculations in land: and 1877–8 the city was kent in commotion by a communistic agitation led by Dennis Kearney. A Mid-winter Exposition, with literary and scientific congresses, was held in Golden Gate Park, 1894, Jan. 1–July 4, and was visited by over 2,250,000 persons. In 1903 cable communication with the Philippines was estab. Pop. (1880) 233,950; (1890) 298,997; (1900) 342,782.

**SAN FRANCIS'CO BAY:** bay on the coast of Cal., 50 m. long, with average width 5 m., fronting the city of San Francisco, and forming the best harbor on the Pacific coast. The melting snows of the Sierra Nevada Mountains and the waters of the California valley reach the bay through the Sacramento and the San Joaquin rivers and San Pablo Bay. The outlet of the bay at San Francisco, to the Pacific Ocean, is known as the Golden Gate, a channel 5 m. long, 2 m. wide, and in some places 400 ft. deep, with rocky shores on the n. 1,800 ft. high, and white sand-hills on the s. 350 ft. high. At low tide the entrance to the harbor is one m. wide, 35 ft. deep, and on the San Francisco city front there is ample room for shipping. Among the numerous islands in the bay are Alcatraz, which is fortified and contains 30 acres; Goat Island, 141 acres; and Angel Island, about 800 acres. N. of the bay is San Pablo Bay, at the head of which is Mare Island, at which there is a U. S. navy-yard. Into San Pablo Bay the waters of Suisun Bay flow, through the Carquinez Strait.

**SAN FRANCIS'CO MOUNTAIN:** mountain in s. part of the Colorado Plateau, lat.  $35^{\circ} 10'$  n., long.  $111^{\circ} 45'$  w.; rising 12,561 ft. above sea-level, and forming the highest peak in Arizona. Though other peaks are near, it rises alone 5,000 ft. above the elevated plain on which they stand. It is 10 m. in diameter at the base, can be seen for a long distance, and from its summit more than 100 volcanoes are visible.

**SAN FRATELLO**, *sán frá-té'l'lō*: town of Sicily, province of Messina, 53 m. w.s.w. from Messina. At the base of the hill on which the town stands is a remarkable cave, discovered 1859, and containing prodigious quantities of bones of mammals, with which flint implements are mixed. Pop. 7,200.

**SANG:** pt. of SING, which see.

## SANGAREE—SANGREAL.

SANGAREE, n. *sāng'ga-rē'* [Sp. *sangria*—from *sangre*, blood—from L. *sanguis*, blood]: in W. Indies, beverage composed of wine, brandy, and lime-juice, sweetened, and spiced with nutmeg.

SANGERHAUSEN, *sāng'ér-how-zēn*: town of Prussian Saxony, 37 m. w. of Halle. It carries on weaving, tanning, shoe-making, and copper-smelting, and manufactures saltpetre. Pop. (1880) 9,136.

SANGFROID, n. *sāng-frwā'* [F. *sang*, blood; *froid*, cold]: coolness; indifference; composure.

SANGIAC, n. *sān'jī-ūk*: same as SANJAK, which see.

SANGIR, *sān-ghēr'*, ISLANDS: group n. of Celebes; 2°—4° n. lat.; more than 50 in number, of various sizes, nearly all inhabited. The three largest, Great Sangir, Sjiauw, and Tagolandang, with those which surround each, form as it were separate groups. In the S. I. are many mountains, which, except the volcanoes, are clothed to their summits with rich vegetation.—Great S. has 273 sq. m.; pop. 13,000. In the n.w. is a volcano, called Abu, or the 'Ash Mountain,' which has frequently caused great devastation.—Sjiauw also is mountainous; a volcano on the n.e. coast being 6,200 ft. high. Pop. 3,000. Chief town, Uluw.—Tagolandang is populous, and the centre of the successful missionary work in the S. Islands. A small ship belongs to the station, in which to visit the scattered converts and schools.—In all the islands, the areng (*Saguinus* or *Borassus gomutus*), the sago, cocoa-nut, and the finest sorts of timber-trees abound. Maize, rice, katjang (a species of bean), tobacco, cocoa, and the sugar-cane are cultivated.—The Sangirese belong to the Malay race, are well made and brave, but cunning, lazy, and dirty in their habits. This, and scarcity of pure drinking water, make them liable to a loathsome skin-disease. There are four rajahs in Great S., one in Tagolandang, and one in Sjiauw. The govt. is monarchical, somewhat limited by a council.

Toward the end of the 15th. c., the Sangirese became Mohammedan; a century later, under the Portuguese, they were brought over to Christianity. These islands, forming now a Netherlands dependency, have several Dutch Prot. missionaries, and 24 churches, whose buildings are used also for schools. Government supports 8 teachers, the villages 16.—Pop. of group 80,000.

SANG-KOI': see TONQUIN.

SANGREAL, n. *sāng'grē-al*, or SANGRAAL, or SAINT GRAAL, n. *sānt grāl* [mid. L. *gradālē*, a cup: or a corruption of the OF. *le Sang Real*, the true blood—i.e., of Christ]: in legendary hist., a sacred relic, the *true blood of Christ* preserved in an emerald cup; or, according to others, the cup used at the Last Supper, said to have been brought to England by Joseph of Arimathea: see GRAIL, THE HOLY.

## SANGSTER--SANGUINARY.

SANGSTER, *sāng'stēr*, MARGARET ELIZABETH (MUNSON): born New Rochelle, N. Y. 1838, Feb. 22. When 20 years of age she was married to George S., who died some years ago. She commenced literary work early in life and has been very successful; was one of the editors of *Hearth and Home* 1871-73, of the *Christian at Work*, 1873-79, and of the *Christian Intelligencer* for many years. She was ed. of *Harper's Young People* 1882-89, and in the latter year became ed. of *Harper's Bazar*. She has published several books for girls, numerous short poems, and *Poems of the Household* (1883), and *Home Fairies and Heart Flowers* (1887). She lives in Brooklyn.

SANGUIEROUS, a. *sāng-gwīf'ēr-ūs* [L. *sanguis*, blood; *fero*, I bear: It. *sanguifero*]: conveying blood.

SANGUIFICATION: see under SANGUIFY.

SANGUIFY, v. *sāng'gwī-fī* [L. *sanguis*, blood; *facio*, I make; *fī*, I am made]: to form or produce blood; to convert chyle into blood. SAN'GUILIFYING, imp. SAN'GUILIFIED, pp. *fīd*. SAN'GUILICA'TION, n. -*kāshūn*, the conversion of chyle into blood.

SANGUINARIA, *sān-gwī-nā'rī-a*: genus of plants of nat. order *Papaveraceæ*, having 8-12 petals, 2 stigmas, an oblong swollen capsule with two deciduous valves, and a persistent, many-seeded frame. The two sepals fall off as the flower opens, in most instances. *S. Canadensis*, the BLOOD-ROOT of N. America, has a fleshy root-stalk abounding in a red juice, which abounds also in the leaf-stalks; and solitary radical leaves, roundish, deeply heart-shaped, and with about seven toothed angles. The flowers are solitary and spring from the root, on short stalks. The whole plant is acrid and narcotic, emetic and purgative, in large doses; and in small doses stimulant, diaphoretic, and expectorant. It is in use as medicine.—It is supposed to owe its properties to a peculiar alkaloid, *Sanguinarine*, obtained from it as a white pearly substance. The large white flowers appear early in spring, and are a frequent ornament of flower-borders.

SANGUINARY, a. *sāng'gwīn-ēr-ī* [F. *sanguinaire*; L. *sanguinārius*, bloodthirsty, cruel—from *sanguis* or *sanguinem*, blood]: attended with much bloodshedding, as a battle; eager to shed blood, applied to persons; bloody; bloodthirsty. SAN'GUINARILY, ad. -*ēr-ī-lī*.—SYN. of 'sanguinary': bloody; bloodthirsty; savage; cruel; murderous.

## SANGUINE—SANHEDRIM.

**SANGUINE**, a. *sāng'gwīn* [F. *sanguin*—from L. *sanguis* or *san'guinem*, blood]: consisting of blood; resembling blood in color, etc.; hence red, ruddy; having abundance of blood, or more or less engorged blood-vessels; having an active blood circulation, hence healthy, vigorous of body, and vivacious, cheerful, hopeful, self-confident, bold, daring: N. in *OE.*, blood color. **SANGUINELY**, ad. *-lī*. **SANGUINENESS**, n. *-nēs*, the condition or quality of being sanguine; heat or ardor of temperament. **SANGUINEOUS**, a. *-gwīn ē-ūs* [L. *sanguinēus*, bloody]: resembling blood; abounding with blood; constituting blood; of a blood color.—**SYN.** of ‘sanguine’: ardent; animated; lively; warm; confident; hopeful; cheerful.

**SANGUINE**, *sāng'gwīn*, or **MURREY**, *mēr'i*: one of the tinctures in heraldry, denoting blood color, and represented in engraving by lines crossing each other saltireways.



Sanguine.

**SANGUINIVOROUS**, a. *sāng'gwīn-īvō-rūs* [L. *sanguis* or *san'guinem*, blood; *voro*, I eat or devour]: eating or subsisting on blood: also **SANGUIV'OROUS**.

**SANGUINOIENT**, a. *sāng-gwīnō-lēnt* [F.—from L. *sanguinolentus*, full of blood—from *sanguis* or *sanguinem*, blood]: mingled with blood; tinged with blood.

**SANGUISORBACEÆ**, *sāng-gwī-suor-bā'sē-ē*, or **SANGUISORBEÆ**, *sāng-gwī-sawr'bē-ē*: according to some botanists, a nat. order of plants; but more generally regarded as a sub-order of **ROSACEÆ** (q.v.). As a sub-order, its distinctive characters are apetalous flowers—the tube of the calyx thickened, indurated, and lined with a disk, generally few stamens, and a solitary carpel, which ripens into a nut inclosed in the calycine tube. About 150 species are known, all herbaceous or half-shrubby, some of them spiny.—The leaves of *Acena sanguisorba*, native of Van Diemen’s Land, are said to be an excellent substitute for tea.—*Sanguisorba Canadensis*, Wild Burnet, is described by Gray under the name *Poterium Canadense*, the genus including *P. sanguisorba*, Garden or Salad Burnet.—See **BURNET: LADY’S MANTLE** (under **LADY**).

**SANGUISUGE**, n. *sāng'gwī-sūj* [L. *sanguisūga*, a leech—from *sanguis*, blood; *sūgērē*, to suck]: the bloodsucker; a leech.

**SANHEDRIM**, n. *sān'ē-drīm*, or **SAN'HEDRIN**, *-drīn* [late Heb. *sanhedrin*—from Gr. *suned'rion*, a council—from Gr. *sun*, together; *hedra*, a seat]: great national judicial council among the ancient Jews; established at the time of the Maccabees, probably under John Hyrcan. It consisted of 71 members, presided over by the *Nasi* (Prince), at whose side stood the *Ab-Beth-Din* (Father of the Tribunal). Its members belonged to the different classes of society: there were priests (*Archiereis*); elders, that is, heads of families, men of age and experience (*Presbyteroi*); scribes, or doctors of the law (*Grammateis*); and others, exalted by eminent learning—the sole condition for admission into this assembly. The presidency was con-

## SANHEDRIM.

ferred on the high-priest in preference, if he happened to possess the requisite qualities of eminence; otherwise, ‘he who excels all others in wisdom’ was appointed, irrespective of his station. The limits of its jurisdiction are not known with certainty; but there is no doubt that the supreme decision over life and death, the ordeal of a suspected wife, and the like criminal matters, were exclusively in its hands. Besides this, however, the regulation of the sacred times and seasons, and many matters connected with the *cultus* in general, except the sacerdotal part, which was regulated by a special court of priests, were vested in it. It fixed the beginnings of the new moons; intercalated the years, when necessary; watched over the purity of the priestly families, by carefully examining the pedigrees of those priests born out of Palestine, so that none born from a suspicious or ill-famed mother should be admitted to the sacred service; and the like. By degrees, the whole internal administration of the commonwealth was vested in this body, and it became necessary to establish minor courts, similarly composed, all over the country, and at Jerusalem itself. Thus, we hear of two inferior tribunals at Jerusalem, each consisting of 23 men, and others consisting of three men only. These courts of 23 men (lesser Synedrion), however, as well as those of the three men, about both of which Josephus is silent, probably represent only smaller or larger committees chosen from the general body. Excluded from the office of judge were those born in adultery; men born of non-Israelitish parents; gamblers; usurers; those who sold fruit grown in the sabbatical year; and, in single cases, near relatives. All these were excluded also as witnesses. Two scribes were always present, one registering the condemnatory, the other the exculpatory votes. The mode of procedure was exceedingly complicated; and such was the caution of the court, especially in matters of life and death, that capital punishment was pronounced in the rarest instances only. The Nasi had supreme direction of the court, and convoked it when necessary. He sat at the head, and at his right hand was the seat of the Ab-Beth-Din; the rest of the 71 took their places according to their dignity, in front of them, in form of a semicircle, so that they could be seen by both the chief officers. The lictors, or ‘sheriffs,’ were always present at the session. The court met on extraordinary occasions in the house of the high priest; its general place of assembly, however, was a certain hall (*Lishcat Hagaziz*), probably at the s.e. corner of one of the courts of the temple. Except on Sabbath and feast days, it met daily. The political troubles forced the S. (B.C. 70) to change its abode to certain bazaars (*Hannyoth*) at the foot of the temple mount. After the destruction of the temple and Jerusalem, it finally established itself, after many further emigrations, in Babylon.

We cannot here enter into that most difficult question as to the origin and development of the S., and how far it was intended primarily to be a faithful reproduction of the Mosaic assembly of the 70 (Moses himself making 71)

## SANHITĀ—SANITARY.

supposed to have been re-established by Ezra after the Exile; any more than we can examine in this place into the widely different opinions respecting the jurisdiction and competence of the S. at the time of Christ and the apostles; how far, in fact, it may be said to have existed at all—except for a few matters of small importance—curtailed and circumscribed as it was by the Romans, who seem to have recognized only the ‘high-priest;’ and that collateral but vital question, whether it was the S. at all from whom emanated the well-known acts recorded in the New Test. There can be no question as to its utter incompetence to arraign Christ for a ‘crimen læsæ majestatis,’ i.e., for high treason against the Roman emperor. No less difficult is the explanation of many of the proceedings against the apostles ascribed to this body. The suggestion that the word *Synedrion*, as used in the New Test., stands only for an arbitrarily convoked ‘lynch-tribunal,’ deserves more consideration than it has hitherto received.

SANHITĀ, *sān'hi-tā*: that portion of the Vedas which contains the Mantras or hymns : see VEDA.

SANICLE, n. *sān'i-kl* [F. *sanicle*, sanicle—from L. *sano*, I heal]: a plant called self-heal; *Sanic'ula Europaea*, ord. *Umbellif'ēræ*.

SANIDINE, n. *sān'i-dīn*: a variety of orthoclase felspar, occurring in transparent crystals.

SANIES, n. *sā'ni-ēz* [L. *san̄ēs*, diseased or corrupted blood: It. and F. *sanie*]: a thin reddish discharge from wounds or sores. SA'NIOS, a. -ūs, pertaining to sanies.

SANITARY, a. *sān'i-tér-i* [L. *sān̄itas*, healthy state or condition—from *sānus*, sound]: pertaining to measures for preserving health; tending to promote health: see SANATORY, under SANABLE—both are often used indifferently, but improperly. SAN'ITA'RİUM, n. -tā'rī-ūm, an erroneous spelling of SANATORIUM, a hospital or retreat for convalescents; a health station: see SANATORIUM under SANABLE. SANITY: see under SANE.

## SANITARY COMMISSION.

SANITARY COMMISSION, UNITED STATES: organization effected 1861, June 12, during the civil war, under an order of the U. S. war dept., with the title, 'A Commission of Inquiry and Advice in respect of the Sanitary Interests of the U. S. Forces.' Its earlier work was that of inspection of the dangers, wants, and deficiencies of each regt., camp, and hospital, and of securing prompt and efficient action of the military and medical authorities on behalf of the health, comfort, and life of the soldiers in the field. After the first six months, its plans extended to devising and executing a general system for gathering throughout the loyal states, and applying to the relief and comfort of the army, a great variety of contributions, supplementary to the usual army supplies. 1861, June 27—1866, Jan. 1, the receipts of the S. C. were \$4,924,048.99, and disbursements the same. The estimated value of supplies given from the people to the S. C. was \$15,000,000. The item of 'expenses' stood at \$362,153.29. The 21 persons who served on the board gave their service gratuitously. The number of agents employed at different periods, at an average pay of only \$2 per day, was from 150 to 700. The special inspection of hospitals, the choice and care of camps, removal and care of the wounded after a battle, formation and administration of convalescent camps, keeping of hospital directories and answering inquiries for soldiers wounded or missing, providing soldiers' homes and specially supplying shelter and food, collecting soldiers' pay, and conducting a bureau of vital statistics, were important features of the work of the S. C., in addition to its immense gathering of supplies and money, and its system of independent transportation, which were of vast service to the govt. and the country. No army had ever before received such aid on a large scale and during a series of great campaigns. No account was ever taken of the receipts of branch treasuries, with which thousands of local organizations were affiliated, but the aggregate of these was at the very least \$2,000,000 in money, while the grand total of the popular gifts to the army probably exceeded the mere receipts of the S. C. treasury by \$25,000,000. During the war the board held 23 sessions, most of them in Washington. To facilitate action, a standing committee of five was invested with authority to represent the board. The members of this were: the pres. of the S. C., the Rev. Dr. H. W. Bellows, Dr. W. H. Van Buren, Prof. Wolcott Gibbs, Mr. Geo. T. Strong, and Dr. C. R. Agnew. To these was added, 1864, Oct., Mr. C. J. Stillé, who later prepared the official history of the work of the S. C., published 1866 Phila. The chief executive officer of the S. C. was the gen. sec., Frederick Law Olmsted, serving 1861, June 20—1863, Sep.; and after him Dr. J. Foster Jenkins, to the spring of 1865, when John S. Blatchford succeeded, and brought to a final settlement the complicated affairs of the organization. Two associate secretaries were employed, with headquarters at Washington and Louisville. The entire collection of records, papers, etc., of the S. C. are preserved in the Astor Library, New York.

## SANITARY SCIENCE.

SAN'ITARY SCIENCE, known also under the names PREVENTIVE MEDICINE, STATE MEDICINE, HYGIENE, and PUBLIC HEATH: defined as 'an application of the laws of physiology and general pathology to the maintenance of the health and life of communities, by means of those agencies which are in common and constant use.' This department of science received so strong an impulse in England from the labors of Southwood Smith, Edwin Chadwick, Lyon Playfair, and others, that many persons regard it (and not entirely without reason) as of modern origin; but the health of the general population was a subject of legislation in the Mosaic code—the most ancient on record. That code contains minute directions for cleanliness of the person, purification of the dwelling and the camp, selection of healthful and avoidance of unwholesome food (pork, e.g., which in hot countries is more commonly found to harbor parasites than in temperate climates, and blood, which is the most putrescible part of the animal), seclusion of persons with contagious disorders, and various other points bearing on the physical well-being of the Jewish nation. The Greeks and Romans, though not, like the Jews, making hygiene a part of their religious duties, were far from neglecting it. 'The Laws of Lycurgus,' says Dr Gairdner, 'are not wanting in very pointed enactments on sanitary matters; and the importance attached by all the Greek republics, and in the Platonic ideal polity, to physical culture, is too well known to require remark. The Roman people, poor and apparently rude as it was in its origin, yet found time, amid its military occupations, to construct the *Cloaca Maxima* (q.v.) as an indestructible and stupendous memorial of its attention to the drainage and sewerage of the city at a very early period of its history. At a later period, aqueducts were made to cover miles upon miles of the surrounding plain; and their splendid ruins, still partly used for their original purpose, attest the munificence and the abundance with which the first of sanitary requisites was supplied to the imperial city.'—*Public Health in Relation to Air and Water*, 1862, p. 6. Moreover, we know enough of the construction of the private houses and public buildings of the Romans to see that they recognized the necessity for free ventilation and good drainage. When the *Architatri populares*, or state-physicians, were first appointed in the Roman Empire, is not known. Their mode of election is described in the Theodosian and Justinian codes. There were ten in the largest towns; one to each district or subdivision; seven in towns of the second order; five in the smaller ones. They collectively formed a college, whose duty it was to attend to the public health; and they may be regarded as the earliest type of our Boards of Health. Gradually, however, as Christianity spread, an utter misconception of doctrine led to neglect of care of the human body. While the monks and friars devoted themselves to good works, feeding the hungry, clothing the naked, and instituting hospitals, they entertained no idea of the possible prevention of disease. They never attempted to im-

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press on their followers the importance of drainage, ventilation, pure and abundant water, etc.; but when an epidemic arose, it was supposed to be a manifestation of God's special anger; and it would have been impossible to make them understand that it was the natural result of a prolonged disregard of the laws of nature. Those who have read Dean Stanley's graphic *Memorials of Thomas A'Becket* will be inclined to wonder whether those who adopted such penances as his could ever be free from cutaneous disorders. As to the state of the towns in England in the 13th c., see Brewer's Introduction to *Monumenta Franciscana*, or a quotation from it in Dr. Gairdner's volume *Air and Water* 44-47. In another work in the same series, *Liber Albus*, is much important information regarding the general sanitary state of London in the mediæval times. In addition to the causes of disease indicated by these writers, such as the absence of drainage, the accumulation of filth, bad ventilation, insufficient and often unwholesome water, inattention to personal cleanliness, etc., must be noticed also the ordinary food in those times. The common vegetables of our own day, excepting the cabbage, were only slowly introduced from the time of Henry VIII. As turnips were not then used as a winter-food for oxen and sheep, these animals were with difficulty kept alive during the season when grass was scanty, and were therefore killed and salted in the beginning of the cold weather; and during several months, game and river-fish were the only fresh animal food. Macaulay, in his celebrated third chapter on 'The State of England in 1685,' observes that, at that time, meat, though cheaper than in former times, was still so dear that hundreds of thousands of families scarcely knew the taste of it; that bread such as is now given to the inmates of work-houses was then seldom seen even on the trencher of a yeoman or of a shopkeeper; and that the great majority of the natives lived almost entirely on rye, barley, and oats. See also Froude's *History of England*.

During the 18th c., important steps were taken for improvement of public health. Under a proper system of drainage, ague became eradicated from extensive fenny districts; and with a knowledge of the therapeutic properties of cinchona bark and arsenic, the disease may be cut short when it appears. Scurvy, still occasionally following a neglect of dietetic precautions, was nearly blotted out of the list of diseases fatal to sailors; and vaccination, incomparably the greatest discovery in this department of science, was the crowning achievement of the century. And yet, in consequence of vaccination being either neglected or imperfectly performed, the mortality 1871-80 in Great Britain was 236 per million, as against 163 per million in the preceding decennial period. See Sir J. Y. Simpson's *Proposal to Stamp out Small-Pox*. The first outbreak of cholera in Britain 1832, lamentable as it was, was productive of benefit in directing the public mind to the prevention or repression of disease. It was impossible to ignore the fact that, while the poor, dwelling in

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unventilated and undrained hovels, fell victims in thousands to this new and ill-understood disease, the middle and higher classes were comparatively safe. All investigations into the dwellings and domestic habits of the lowest class of the population revealed a condition of things of which the general public had no conception. The result was a new poor-law (1834), with commissions of investigation and their successive reports. Dr. William Farr, with painstaking labor, reduced the whole confused subject to a science. By his system of calculating death-rates, he placed an easy and useful method at the service of his professional brethren; while, by the formation of life-tables, he greatly facilitated the operations of life insurance. From this beginning sanitation has made great progress in Britain. The national gain from the decrease in the death-rate was strikingly put in a supplement to the Registrar-general's Report for England 1885, and reviewing the period 1871-80: 'The changes in the death-rates have given to the community an annual addition of one million eight hundred and forty-seven years of life shared among its members; and allowing that the changes in the death-rate are the direct consequence of sanitary interference, we must regard this addition of nearly two million years of life as an annual income derived from money invested in sanitation.' Further, see Annual Reports of the Local Govt. Board; and for an account of English sanitary machinery and administration, see the work on *Local Government*, by M. D. Chalmers, 1883.

We pass to consider the most important sanitary agents, beginning with AIR. Under this head, we have to consider (1) the amount of air necessary for the full performance of the respiratory process; (2) the means of ascertaining when air is impure, or, if impure, what substances are mixed with it; (3) the means of purifying contaminated air; (4) the diseases due to deficiency in the quantity, and alterations in the quality of the air.

(1) The *first* question can be answered both by calculation and by experiment. The earlier observers fixed the requisite quantity of fresh air far too low; e.g., Arago at 353 cubic ft. per hour for a person. By calculation, Dr. Parkes finds that 2,082 cubic ft. of air must be supplied per head per hour, so to dilute the products of respiration and transpiration from the sound body, as to keep the air always pure and fresh (see his *Manual of Practical Hygiene*, 1864, p. 65). From numerous experiments in which the outflow of air was measured, and the carbonic acid simultaneously determined, he found that at least 2,000 cubic ft. per hour must be given to keep the carbonic acid at its normal level of .5 or .6 in 1,000 volumes, and to remove the *odor humanus* or fetid smell of animal matter. Gen. Morin (see *Rapport de la Commission sur le Chauffage et la Ventilation des Bâtimens du Palais de Justice*, 1860) gives results in close accordance with those of Parkes, assigning the following as the relative hourly amounts of fresh air (in cubic ft.) per head in temperate climates: in barracks, 1,059 by day, 2,118 by night; in workshops, prisons,

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and theatres, 2,118; in schools; 1,059; in hospitals, 2,825, increased to 4,236 during the hours of dressing the surgical cases, and 5,650 during epidemics. In mines, if it is wished to keep up the greatest energies of the men, 6,000 ft. of air per hour must be allowed. A horse requires at least 2,460 ft. per hour. It is difficult to lay down any rules regarding the amount of fresh air required in sickness. Vitiation of the air by the products of combustion of gas, candles, lamps, etc., must not be overlooked. According to Dr. Parkes, for every cubic ft. of gas burned, 1,800 cubic ft. of air are required to keep the air pure, unless the gaseous products are carried off in a special channel attached to the gas-fittings. A pound of oil burned in a lamp may be regarded as equivalent to 10 cubic ft. of gas, so far as the deterioration of the air is concerned.

(2) For the composition of pure air, see ATMOSPHERE. The impurities in air may be divided into: (a) suspended matters, (b) gaseous substances, (c) special impurities. Among *suspended matters* are, according to Pasteur and others, numerous and universal germs of organic beings, animal and vegetable, e.g., of vibriones, bacteria, and monads; pollen, spores of fungi, mycoderms, mucedones, etc. Minute particles of finely comminuted inorganic matter also are often taken up by currents of air, and remain in suspension: these are probably harmless. The works of man more seriously affect the air in a hygienic view. Particles of coal and of half-burned carbon (smuts), starch-cells (from bakeries and bread), and, from certain industries, cotton fibres, particles of wool, of stone, of iron, etc., may, when constantly inhaled, produce special diseases of the lungs and stomach. In the air of badly kept hospital wards, pus-cells and epithelial cells are often detected. Most physicians now believe that the specific poisons of small-pox, scarlet fever, and measles, derived from the skin and mucous membrane, consist of molecular organic matter, which, though as yet undetected, must pass into the air; and the same remark applies to the so-called germs of typhoid fever (see TYPHUS AND TYPHOID FEVERS) and of cholera, which are thrown off by the intestinal mucous membrane, and subsequently become dried and capable of aerial suspension. Among *gaseous matters*, which merely pass into the atmosphere either from natural causes or manufactories, are various compounds of carbon, sulphur, chlorine, nitrogen, and phosphorus, with oxygen and hydrogen. Besides the gases formed by union of the above named elements, we must notice organic vapor from decomposing animal matters and sewers, which last has been found by Odling to be carbo-ammoniacal. Among *special impurities*, those caused by respiration are most important. An adult man, under ordinary conditions, gives off, in 24 hours, 12 to 16 cubic ft. of carbonic acid by the lungs; and a certain additional quantity, not determined, by the skin. Watery vapor, 25 to 40 ounces, also passes off daily from the skin and lungs, with an undetermined quantity of organic matter, partly suspended (as particles of epithelium, etc.),

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and partly made up of organic vapor. This vapor, when collected and condensed from a large volume of respiration, is found to be nitrogenous, and has a very fetid smell. Numerous chemical analyses have been made of this most powerful source of vitiation (see Parkes, work above cited, 70-77; Gairdner, above cited, 69; Mapother's *Lectures on Public Health*, 2d ed., 40-61). There is a condition of the atmosphere to which various observers, especially Pasteur, have directed attention, which may be termed the fermentative condition, and depends on the universal presence in the air of countless germs of vegetables and infusoria, and doubtless is concerned in some of the zymotic diseases. The presence of a *cholera-fungus*, proved to exist in evacuations of all cholera patients, gave indication of the probable cause of that disease. Davaire taught that the splenic apoplexy of sheep is owing to the presence of bacteria in the blood; and that sheep, rabbits, and horses can be inoculated by transferring into their circulation the bacteria, which are extremely small rod-like organisms. The same observer found that bacteria are to be found in all carbuncular diseases of any form whatever; that the supervention of these little beings in the spleen, the lungs, and the blood, precedes the occurrence of morbid phenomena; and that the carbuncular blood ceases to be contagious as soon as the bacteria have disappeared. Another French observer, Poulet, detected myriads of infusoria in the breath exhaled in whooping-cough. Dr. Klein in *Micro-organisms and Disease* (1884) affirmed that the pathogenic influence of micro-organisms had been proved in the case of erysipelas, gonorrhea, malignant pustule, etc.—See GERM THEORY OF DISEASE: KOCH, ROBERT: PASTEUR, LOUIS.

(3) The natural means of purifying the atmosphere are diffusion, oxidation, action of winds, and fall of rain. Where the air is specially impure, as in sick-rooms where there are contagious cases, the agents commonly known as *Disinfectants* (q.v.), or *deodorants*, are employed. Among the *solids* of this class are charcoal (see WOOD-CHARCOAL), dried earth, and the carbolates of lime and magnesia. Among the *liquids*, those in highest reputation are *Condy's Fluid* (consisting of an alkaline permanganate, which at once decomposes ammoniacal compounds, and destroys organic matter rapidly) and carbolic acid: while among the *gases* or *vapors*—the most powerful means of purifying the atmosphere, next to ventilation—are, in especial, chlorine, nitrous acid, and sulphurous acid; of these, says Dr. Parkes, the nitrous acid is probably the most powerful, but it is useful to employ all three alternately, or even together. See DISINFECT. Yet all these agents are mere auxiliaries to ventilation, whose primary importance must never be forgotten.

(4) Abundant experience confirms the inference from the physiology of Respiration (q.v.), that the breathing of impure air is incompatible with health. The special impurities noticeable as causes of disease, or of impaired health, are arranged by Dr. Parkes as follows: (a) Suspended

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matters; (b) Gaseous matters; (c) Impurities from several substances always co-existing.

(a) *The suspended matters* known to occasion disease in various industries, are very numerous. Thackrah, in *The Effects of Arts, Trades, and Professions on Health* (1832) gives the following list of workmen who were injuriously affected by the dust of their trades: Corn-millers, maltsters, tea-men, coffee-roasters, snuff-makers, paper-makers, flock-dressers, feather-dressers, shoddy-grinders, weavers of coverlets, weavers of harding, dressers of hair, hatters employed in the bowing department, dressers of colored leather, workers in flax, dressers of hemp, some workers in wood, ware-grinders, masons, colliers, iron-miners, lead-miners, grinders of metals, file-cutters, machine-makers, makers of firearms, and button-makers. Colliers in ill ventilated mines suffer from lung disease; and to the list above must be added potters, especially the *flat-pressers*, in whom emphysema is so common that it is known as 'the potters' asthma;' china-scourers, who all, sooner or later, become asthmatical from inhaling the light flint-dust in suspension; pearl button-makers and pin-pointers, who suffer from bronchitis, and haemoptysis; makers of grinding-stones and of Portland cement, etc. In some manufactures irritant vapors are more or less associated with suspended particles in causing disease. Brass-founders suffer not only bronchitis and asthma from the inhaled dust, but also a special disease, described by Dr. Greenhow (*Proceedings of the Medico-Chirurg. Soc.*, IV.) as Brassfounders' Ague, produced apparently by inhalation of the fumes of oxide of zinc; the symptoms being oppression of the chest, with indefinite nervous sensations, followed by shivering, a hot stage, and profuse sweating. Coppersmiths and tin-plate workers are liable to somewhat similar attacks. Plumbers, house-painters, manufacturers of white-lead, etc., are, as is well known, liable to lead-poisoning. For the peculiar affection, *Mercurial Tremor* or the *Trembles*, to which workers in mercury and its amalgams, as silverers and water-gilders, are exposed, see PARALYSIS. In industries in which arsenical compounds are employed, e.g., making artificial flowers, green paper for walls, etc., preparing arsenical pigments, etc., the well-known symptoms of chronic arsenical poisoning are likely to ensue.

Passing from inorganic or unorganized matter to organic substances floating in the atmosphere, and giving rise to a large class of important diseases, we remark, that it remains to be decided in what exact condition this organic matter exists—whether in the form of impalpable particles, or moist or dry epithelial or pus cells; 'and whether it is always contained in the substances discharged or thrown off from the body (as is certainly the case in small-pox), or is produced by putrefactive changes in these discharges, as is supposed to be the case in cholera and dysentery, is also a matter of doubt. But, from the way in which, in many cases, the organic substance is absorbed by hygroscopic substances, it appears that it is often combined, or at any rate condensed, with the water of the atmosphere.'—

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Parkes, as above, 86. This is known regarding the specific poisons—viz., that they differ extremely in the readiness with which they are oxidized and rendered harmless. While typhus and oriental plague throw off a poison, which, if there is due ventilation, is readily destroyed, the poisons of small-pox and scarlatina spread in defiance of free ventilation, and retain their virulence for weeks or months.

(b) The most important *gaseous matters* in the air likely to produce disease are *carbonic acid* (carbon dioxide,  $\text{CO}_2$ ) and *carbonic oxide* (carbon monoxide, CO). The normal quantity of carbonic acid in the air being regarded as .5 in 1,000 volumes, ‘it produces fatal results when the amount reaches 50 per 1,000 volumes; and at an amount much below this, 15 or 20 per 1,000, it produces in some persons, at any rate, severe headache.’ Dr. de Chaumont, assistant prof. of hygiene at Netley, has published extended formulæ for calculating most of the problems connected with ventilation. Among his most important conclusions are the following: (1) We cannot safely accept a lower standard of purity than ‘.06 per cent. of carbonic acid. (2) Uniform diffusions being supposed, we cannot preserve this standard with less delivery of fresh air than 3,000 cubic ft. per head per hour. (3) We must provide an air space which will admit the delivery of 3,000 cubic ft. per head, and at the same time preclude the necessity of changing the whole air so often as six times per hour, for which condition a minimum of 1,000 cubic ft. is absolutely necessary. *Carbonic Oxide* (q.v.), often developed in association with carbonic acid, is far more actively poisonous than carbonic acid. An atmosphere containing  $\frac{1}{2}$  per cent. killed small birds in three minutes; and when 1 per cent. was present, they died in half this time (Letheby). For the effect of other gaseous matters, as sulphureted hydrogen, carbureted hydrogen, sulphurous acid gas, hydrochloric acid gas, etc., see any of the more elaborate works on this subject.

(c) The *impurities from several co-existing agents* next claim attention. In fact, these are the impurities with which we have practically almost always to deal. When air is vitiated by respiration, it is popularly believed that the carbonic acid gas is the chief poisonous agent; and that the fatality in such well-known cases as the Black Hole (q.v.) of Calcutta, the prison in which the Austrians were placed after the battle of Austerlitz, etc., is due simply to the action of this gas. The true poisonous agencies in these instances are the organic matter always found in air rendered fetid by the prolonged respiration and cutaneous exhalation of a crowd of human beings, and the deficiency of the oxidation, and the consequent increase of putrescent matter in the body (see Carpenter’s *Human Physiology*, 1864, p. 304). Putting aside these extreme cases, which are rare, we have abundant evidence that the continuous inhalation of an atmosphere moderately vitiated from respiration is injurious: the aeration of the blood is imperfectly effected, and the nutrition generally is more or

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less interfered with. Although air contaminated by respiration has long been vaguely regarded as a cause of phthisis, and other lung troubles, during the 19th c. the fact has been placed on unquestionable authority. In the Brit. army phthisis formerly prevailed in the most varied stations, and in the most beautiful climates: in Gibraltar, Malta, Ionia, Jamaica, Trinidad, Bermuda, etc., in all which places the only common condition was the vitiated atmosphere of the barracks. Since the air has been made more pure there has been a most decided decline in phthisical cases in these stations. Evidence is added by comparative pathology. The extraordinary mortality by phthisis among the inhabitants of the old monkey-house in the Zoological Gardens, London, was found to be due to over-crowding and bad ventilation: in their present airy residence, the animals no longer die prematurely. The over-crowding of cows in large towns leads to the ravage by pulmonary disease among these animals; while horses, which in the worst stables have more free air than cows, rarely suffer. Air vitiated by organic exhalations seems to favor the spread of several well-known specific diseases, also; e.g., typhus, plague, small-pox, scarlatina, and measles.

Hitherto, we have considered the effect of breathing an atmosphere vitiated merely by exhalations from persons in ordinary health. In the air of a crowded hospital-ward, the organic matter is not only more abundant, but also far more noxious; and the convalescence of patients is much retarded by such an atmosphere (see CONVALESCENT HOSPITAL). When the air has absorbed a certain amount of organic impurity, its respiration is very liable to give rise to erysipelas and hospital gangrene. *Sewers* and old cess-pools, when opened, give off sewage-gas containing carbonic acid, sulphureted hydrogen, sulphide of ammonium, and putrid organic vapor. Typhoid and diarrhea are commonly induced by escape of sewer-gas through drains and water-closets into houses. Hence, the indispensability of most careful scientific plumbing. The effects of the impurities arising from manufactories of various kinds, are of course extremely varied; and can here be only glanced at. Sulphurous and sulphuric acid are given off from vitriol and copper smelting works; hydrochloric acid from alkali works; arsenical fumes and sulphurous acid from copper and lead smelting furnaces, carbonic acid and carbonic oxide from cement-works, etc. Soap and candle manufactories, if not well superintended, yield various gases of rancid smell, and even that powerful irritant, acroleine. Gas-works in which the wet-lime process of purification is adopted, often evolve sulphureted hydrogen to a degree injurious to health. The *air of old graveyards*, when they are disturbed, often occasions epidemics of fever; but the effect of the effluvia of comparatively recent putrefying human bodies is much more decided. How far the effluvia arising from *slaughter-houses* and *knackeries* are injurious to health, is an open question; except that when putrid matters are allowed to remain, disease is

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known to result. Malaria from *marshes* occasions not only intermittent and remittent fevers, but also diarrhoea and pure dysentery. Organic matter to the amount of eight grains has been obtained from 1,000 cubic ft. of air collected over marshes; and it has just the same chemical characters as the organic matter exhaled from the lungs, turning red with nitrate of silver, yielding ammonia when treated with lime, and blackening sulphuric acid when drawn through it. See Mapother, above cited, 87.

The next point to be considered is the means to be adopted for continually changing the air, so as to keep its natural purity. We have already shown that this change must amount to at least 2,000 cubic ft. per head per hour for persons in health; and sometimes double that amount, or more, for sick persons. For the general principles of ventilation, see WARMING AND VENTILATION: we confine ourselves here to a few supplementary observations concerning the supply of fresh air. The following is from Dr. Parkes (cited above) p. 103. (1) 'The *entering air* must itself be pure. It must be warmed if too cold, and cooled if too warm. (2) Its movement should be imperceptible, otherwise it will cause the sensation of draught, and will chill. The rate at which the movement becomes imperceptible is  $1\frac{1}{2}$  ft. per second, or 1.36 m. per hour; 2 and  $2\frac{1}{2}$  ft. per second, or 1.4 and 1.7 m. per hour, are imperceptible to some persons; 3 ft. per second, or 2 m. per hour, is perceptible to most;  $3\frac{1}{2}$  ft. is perceived by all persons. Any greater speed than this will give the sensation of draught, especially if the entering air be of a different temperature, or moist. (3) It must be well diffused all through the room, so that in every part a movement shall be going on—in other words, the distribution must be perfect. (4) The *outgoing air* must be removed so immediately that there shall be no risk of a person breathing again either his own expired air or that of any other person.'—The *action of the wind* is a powerful ventilating agent. If it can pass freely through a room with open doors and windows, it changes the air to an extent that can be effected in no other way. The most serious objection to winds as ventilating agents by perflation is the uncertainty of their movement, and the difficulty of its regulation. When the velocity reaches 4 m., it is found unpleasant by most people, and is therefore either excluded, or admitted only through small openings, so failing to be properly distributed. For the employment of wind in systems of ventilation, see Ritchie's *Treatise on Ventilation*, 1862; Tomlinson's *Treatise on Warming and Ventilation*. In ventilation of ships, the wind is always used, the air being directed between decks and into the hold by wind-sails or tubes with hoods turning toward the wind. In artificial ventilation by a fan or screw, it is a question which of the two methods should be employed—*extraction*, in which the air is drawn out of a building or room; or *propulsion*, in which air is driven in, to force out the air already in the room: both plans have advocates of authority. The advantages of propulsion are its certainty and the ease with

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which the amount may be altered. The stream of air can be taken from any direction, and can be washed, cooled, or warmed at pleasure. See BLOWING-MACHINES. In some large buildings, the air is taken from the basement; is washed, by being drawn through a thin film of water thrown up by a fountain; is passed (in cold weather) into vessels for the purpose of warming it, in which it can be moistened by a steam-jet, if the difference of the dry and wet bulb be more than five degrees, and is then propelled along the channels which distribute it to the hall. In summer, it is cooled in the conduits by the evaporation of water. This plan has been successful in hospitals in the United States, England, and France.

For the best means of keeping the air of rooms at proper temperature, see WARMING. The degree of artificial warmth should vary according to circumstances. Healthy adults, well fed and clothed, may find a temperature of 60°, or even less, comfortable; while children and aged persons require 65° to 70° or even more. In hospitals, the proper temperature is usually supposed to be about 60°; but in diseases in which there is preternatural heat, except possibly in scarlatina, a lower temperature is often deemed expedient. In most febrile cases, in the acute stage, cold air, cautiously introduced, moving over the body is efficacious as a cooling agent.

The next sanitary element to be considered is WATER. The *daily quantity* of water for healthy and sick persons is the first point for consideration. Water is required by healthy persons (1) *For drinking*. A man weighing 140 lbs. will take on an average 70 to 90 ounces of water in 24 hours, of which 30 or 40 ounces are taken imperceptibly in the solid food, while the remaining 50 or 60 ounces are taken in liquids. But the amount varies extremely. The usual allowance on board ship for both drinking and cooking is 8 pints per adult daily. (2) *For cleaning the person, clothes, and habitations*. Dr. Parkes estimates 4 gallons per head daily as the smallest amount; and if perfect cleanliness is to be secured, and baths are taken, at least 16 gallons per head are required. A general bath requires about 50 gallons; a shower-bath at least 6 gallons; and a hip-bath 12 to 18 gallons. (3) *For sewage*, an additional 9 gallons per head daily must be added. The amount for a water-closet varies with its construction.

It is well to know that a horse drinks 8 to 12 gallons daily, and ought to have 3 or 4 more for grooming purposes; a cow or small ox drinks 6 to 8 gallons; and a sheep or pig, 2 quarts to 1 gallon.

For the different sources of water—rain-water, rivers and springs; their impurities and the methods of detecting them; and the modes of purifying bad water, see WATER-SUPPLY. The *organic matters* in different waters used for drinking require additional remarks, on account of their extreme importance in a hygienic view. Organic matters vary in amount from 0.3 per gallon to 12 or even 30 grains per gallon, the purest waters in this respect being those from granitic, or clay-slate, or chalk districts. The most common

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organic matter is from the vegetable kingdom, and consists of humin and ulmin, and of acids derived from humus; all which substances are non-nitrogenous, though the acids combine readily with ammonia. This form of organic matter is far less dangerous than that of animal origin and containing nitrogen. This organic matter is usually derived from the contents of cesspools or sewers percolating into springs, and sometimes from graveyards even at some distance. Its exact composition is not known. Fecal and biliary matters doubtless contribute to the composition of this matter; and in addition, decomposed flesh, as the refuse of butchers' shops and slaughter-houses—substances from type-manufactories and gut-spinners, from size, horn, and isinglass manufactories, etc., often contribute to the organic matter of well and spring water. Most of these substances, in decomposing, produce both nitrous and nitric acid, and ammonia; and the nitrites and nitrates thus formed unfortunately not only do not communicate any bad taste or smell to the water, but actually tend in many cases to render it palatable. The use of water of this kind is liable to produce diarrhea, and choleraic symptoms.

The characters of good drinking-water—as laid down after much discussion by various sanitary congresses—are summed up by Dr. Parkes as follows: ‘It must be transparent, colorless, without odor, and tasteless; it should be well aerated (as it then appears to be more easily absorbed), cool, and pleasant to drink; it must have no deposit; vegetables should be readily cooked in it; the total dissolved constituents must be within a certain amount, which, with some limitation, may be represented by the following numbers: organic matter should not exceed 1·5 grains per gallon; carbonate of lime, 16 grains; sulphate of lime, 3 grains; carbonate and sulphate of magnesia, 3 grains; chloride of sodium, 10 grains; carbonate of soda, 20 grains; sulphate of soda, 6 grains; and iron, 0·5 of a grain.’ To the substances named in the article on WATER-SUPPLY, as purifying water from organic matter, we add the following: (1) *Permanganate of potash*, commonly known as Condy’s Fluid, which decomposes organic matter and ammoniacal compounds by rapid oxidation. (2) *Strychnos potatorum*, used in India to purify water; the nut being rubbed on the inside of the casks. (3) Certain vegetables containing *tannin*, e.g., tea, kino, the Laurier rose (in Barbary), and bitter almonds (in Egypt). The water of the Peiho and other rivers in N. China is so impure and offensive during winter, that the Chinese never drink it except as tea, when it seems to lose all its bad effects.

The consequences of an *insufficient* and *impure* supply of water deserve the most serious consideration. An insufficient supply leads to the person and clothes not being washed at all, or being repeatedly washed in the same water; to water for cooking being repeatedly used; to imperfect cleansing of houses and streets; to the sewers becoming clogged, and the air thus rendered impure. The natural result is—as in the case of a deficiency of pure air—depressed condition of the general health, with tendency

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to skin-diseases, ophthalmia, etc.; while the imperfect cleansing of the sewers favors the spread of typhoid fever and choleraic diarrhea. A continually increasing class of cases is found to be connected with the use of impure water; the principal noxious ingredients being animal organic matter, especially when of fecal origin; vegetable organic matters, when derived from marshes; and some salts, except when in very small quantities—e.g., sulphates of lime and magnesia, chlorides of calcium and magnesium, nitrates and nitrites of ammonia, etc. The *alimentary mucous membrane* is considered especially liable to be affected by impure water. Thus, dyspepsia, with such symptoms as partial loss of appetite, uneasiness or pain in the pit of the stomach, nausea and constipation, with occasional diarrhea, may be caused by water containing certain quantities (probably about eight grains each per gallon) of sulphate of lime, chloride of calcium, and the magnesian salts. *Diarrhea* may be caused by the use of many of the great N. Amer. rivers, the Ganges, etc., where much clay is held in suspension. Water contaminated with sewage, and containing suspended animal and especially fecal matter, is a common cause of an outbreak of this affection, and even of choleraic symptoms. Dissolved animal organic matters doubtless have similar effect, but it is difficult to distinguish between the actions of these and of suspended organic matters. Among other impurities known to occasion diarrhoea are fetid gases (sulphureted hydrogen), and excess of dissolved mineral matters and nitrate of lime; and on most persons, brackish water acts similarly. The effects which the selenitic well-waters of Paris exert on strangers are well known. There is abundant evidence to show that impure water is one of the principal causes of *Dysentery*. The records of army surgeons abound in illustrative cases.

In addition to diseases affecting the alimentary mucous membrane of the intestines, there are certain *specific diseases* which result from use of impure water; e.g., *Malarious Fevers* of various forms, from use of the water of marshes; *Typhoid Fever*, from water contaminated with sewage matters, or the special typhoid poison; *Cholera*, from water into which cholera evacuations have made their way; and possibly *Yellow Fever*. (The relation of impure water to typhoid fever and cholera will be more fully noticed later in this article.) To the use of water unfit for drinking purposes are also ascribed epidemic boils from the presence of sulphureted hydrogen; disease of the bones, as exostosis, from an excess of carbonate and sulphate of lime; calculi (on, we think, insufficient evidence); goitre, from water derived from limestone and magnesian rocks; and entozoa of various kinds. Dr. Parkes (as above cited, p. 63) sums up the department of his *Manual* which treats of water in a hygienic view with the following: '(1) An endemic of diarrhea in a community is almost always owing either to impure air, impure water, or bad food. If it affects a number of persons suddenly, it is probably owing to one of the two last causes; and if it extends over many families,

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almost certainly to water. (2) Diarrhea or dysentery constantly affecting a community, or returning periodically at certain times of the year, is far more likely to be produced by bad water than by any other cause. (3) A very sudden and localized outbreak of either typhoid fever or cholera is almost certainly owing to the introduction of the poison by water; and the same fact holds good in cases of malarious fever. (4) The presence of *lumbrici*, guinea-worm, or *Bothriocephalus latus*, should always excite suspicion of the drinking and bathing water.'

After the two most important factors in relation to health, viz., air and water, SOIL and CLIMATE occupy a secondary, though important place. *Soil* may affect health (1) by its conformation and elevation. Thus, among hills, the unhealthful spots are inclosed valleys where the air must stagnate, and ravines. On plains, the most dangerous spots are at the foot of hills which store up water, unless a ravine cuts off the drainage. (2) Vegetation exerts an important influence. If we regard vegetation as divisible into herbage, brushwood, and trees, it may be laid down as a general rule, that herbage is always healthful, and in the tropics, is of great importance in cooling the ground, both by obstructing the sun's rays and by aiding evaporation; that brushwood is almost always bad, but that its removal may cause temporary increase of malarious disease, on account of the disturbance of the soil; and that trees should seldom be removed, unless they decidedly interfere with the movement of the air; for in cold countries they shelter from cold winds—in hot, they cool the ground—and in both they may afford protection from malarious currents. The present condition of St. Thomas in the W. Indies, now one of the most pestilent sites, is due mainly to the insane destruction of its trees. The island of Mauritius has suffered fearfully from fever from the same cause. (3) The mechanical structure of the soil is of hygienic importance. Thus, *heat* is very differently absorbed by different soils under the same conditions of exposure. Assuming that sand with a little lime has the maximum power of retaining heat, and that its capacity be represented by 100, then the capacity of clay will range from 76·9 to 66·7; while that of chalk will be 61·8, and that of humus as low as 49. Hence, we see the comparative coldness of the latter soils as compared with sand. The capacities of these soils for absorbing and retaining moisture are in the reverse order.

As a general rule, there appears the following connection between the geological characters of a site and its probable healthfulness. *Granitic*, *Metamorphic*, and *Trap Rocks* are usually healthful: there is generally a slope, so that water runs off readily, the air is dry, vegetation moderate, and drinking water generally good. They are, however, supposed to be unhealthful when they have become disintegrated, as at Hong-Kong, into a dark-colored soil. *Clay-slate Rocks* are regarded as healthful, for similar reasons: water, however, is often scarce. Of the varieties of *Limestone Rocks*, the hard oolite is the best, and the magnesian (which,

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if possible, should always be rejected as a site) the worst. *Chalk*, unmixed with clay, forms a very healthful soil; but if it be mixed with clay, it loses its permeability, and is often damp and cold. The air is pure, and the water, though hard, is clear, sparkling, and pleasant. The *Sandstones*, if permeable, are healthful; but if, from an admixture or underlying of clay, they lose this property, they are often damp. The water must be carefully examined. The hard millstone grits are very healthful. *Gravels* of any depth are healthful, unless water rises through them. Dr. Parkes considers gravel-hillocks as the most healthful of all sites, and the water as being very pure. *Clay*, *Dense Marls*, and *Alluvial Soils* must be regarded with suspicion. Such soils, especially the deltas of rivers, should be avoided as sites; and if they must be chosen, thorough subsoil draining, careful purification of the water, and elevation of the houses far above the soil, are the measures to be adopted.

**CLIMATE.**—The most important climatic conditions connected with the air are *temperature*, *humidity*, and *movement, weight, and composition of the air*. Not entering into the general subject of acclimation, we remark that Americans and Europeans from temperate climates seem to thrive in countries not much hotter than their own; though it is yet too soon to decide whether the general vigor of the race will improve or diminish. In countries with a yearly mean of 20° F. higher than the home climate, as in many parts of India, the race seems to dwindle, and gives indications of dying out. The endemic diseases of North Americans and Europeans in the tropics are liver-disease and dysentery; but it is uncertain how far other influences besides heat may be at work in producing these diseases. Rapid changes of temperature are always dangerous. The sudden check to the free action of the skin caused by a cold wind, is almost sure to give rise to catarrh, inflammations, and neuralgia. In London, the registrar-general's returns show that when the temperature falls from 45° to 27°, the weekly mortality is increased by 400, bronchitis mainly causing this increase, though it is not usually fatal in more than about 40 cases weekly. For the fatal influence of extreme cold, see COLD. According to their humidity, climates are divided into *moist* and *dry*. The most agreeable amount of moisture to most persons is when the relative humidity is between 70 and 80 per cent. (By *relative humidity* we express comparative moisture; complete saturation being assumed to be 100. It is determined by dividing the weight of vapor actually existing in the air (or the absolute humidity) by the weight of vapor which would have been present if the air had been saturated). In chronic lung-diseases, a still moister air is most pleasant, and serves to allay cough. The morbid effects of undue moisture are always associated with rise of temperature. As a general rule, warmth and great humidity are less injurious than cold and great humidity. There seems a close relation between the spreading and the checking of certain epidemic diseases and the relative moisture of the

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atmosphere. The malarious diseases are most intense when the moisture is excessive; while plague and small-pox are checked by a very dry atmosphere. Yellow fever seems unaffected by this atmospheric condition. The mere humidity of a climate, irrespective of other climatic relations, is deemed not injurious to life.

The *movement of the air* is another climatic condition of importance, but it must be considered in connection with heat and moisture. A cold wind abstracts the bodily heat in proportion to its velocity; while a hot wind, if dry, increases evaporation, and may thus partly neutralize its own heating power. Variations in atmospheric pressure are of great importance in relation to health. 'In ascending mountains,' says Dr. Parkes 'there is rarefaction, i.e., lessened pressure of air, lowered temperature, and lessened moisture above 4,000 ft.; greater movement of the air; increased amount of light; greater sun-radiation, if clouds are absent; and the air is freer from germs of infusoria. Owing to the rarefaction of the air and watery vapor, there is greater diathermancy of the air; the soil is rapidly heated, but radiates also fast, hence very great coolness of the ground and of the air close to it at night.' The physiological effects of lessened pressure begin to be perceptible at somewhat less than 3,000 ft., at which altitude the mercury falls 3 inches. The pulse is quickened by 15 or 20 beats, and the breathing by 10 or 15 inspirations per minute; there is increased evaporation from the skin and lungs, while the urinary secretion is probably diminished. At an elevation of 6,000 or 7,000 ft., as in the Swiss Alps, the effect of the mountain air shows itself in marked improvement in digestion, sanguification, and in nervous and muscular vigor. At great heights, there is swelling of the superficial vessels, and occasional bleeding of the nose and lungs; and a sensation of weight is felt in the limbs from the lessened pressure on the joints. A residence for some time in a mountain-air is of great value in all anaemic affections, whatever their cause. Neuralgia, gout, and rheumatism are benefited by high alpine positions (see Weber *On the Climate of the Swiss Alps* 1864); and scrofula and consumption are almost absent in the true alpine regions, while patients affected with these diseases, if brought to such a climate, rapidly improve. On the other hand, pneumonia, pleurisy, and acute bronchitis are more common in high regions than lower down. The disease formerly known as 'mountain asthma' seems, from Weber's observations, to be common pulmonary emphysema combined with or followed by chronic bronchitis.

For the subject of FOOD, see *DIET: FOOD AND DRINK*. There are, however, certain points connected with it which obviously fall within the domain of hygiene; e.g., (1) quantity of different kinds of food required for persons of different sexes and ages, and under varying conditions of life and climate (see DIET); (2) determination of the best articles of food in each class, and whether they are in proper state for use. On diet, Pettenkofer and Voit (quoted in Parkes's *Sanitary Report of the Army for 1865*)

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give statements showing that a strong average man requires, 5·22 oz. of dry nitrogenous matters, 3·63 oz. of fat, and 13·3 oz. of carbohydrates. They find also that when the food is sufficient, the daily excretion of carbon from the lungs is 8·92 oz. or 3,902 grains. We add that an average man, at moderate work, takes, in 24 hours, from  $\frac{1}{2}$  to  $\frac{1}{10}$  of his own weight in solid and liquid food—viz., 34 to 46 ounces of so-called solids, as bread, meat, etc.; and 50 to 80 ounces of water. The ratio of the solid to the liquid food is generally 1 to 2, but may be 1 to 6. Great bodily exercise requires greater increase of the solid than of the liquid food. The proper arrangement of diet for the sick is very difficult. In hospitals, fixed scales must, as a matter of convenience, be adopted; but almost every special case requires a modification. For further information on special diets, see various special works.

The diseases connected with food are so various that we can notice only the most important. Passing over those which arise from excess of food generally, or of one of its classes, with the remark, that prolonged excess of albuminates gives rise to congestion and enlargement of the liver, and a general plethora, while excess of starchy matters may possibly affect the muscular fibres of the heart and voluntary muscles, and certainly often renders the urine saccharine, we proceed to notice diseases produced by deficiency of food. The history of epidemic fevers in all ages and countries shows the close relation between famine and fever. In the *Irish famine* 1847-49 (three years) 579,721 cases were treated in the hospitals alone. Fleeing in despair, emigrants carried the germs of disease with them; and the so-called *ship-fever* which followed destroyed its thousands. In one vessel, 329 out of 349 passengers caught the fever, and 117 died; and the mortality in Liverpool, induced by the contagion of the fever-stricken Irish who landed there, suddenly became the highest ever recorded in any modern town—the death-rate being raised to 70 per 1,000. The opinion has been expressed by high authority that the use of the potato as an almost sole article of diet has done much harm, in consequence of the deficiency of that root in nitrogenous matters and in salts of lime and magnesia. To this source he traces indigestion, consumption, scrofula, rickets, ophthalmia, and chronic rheumatism. The deprivation of starchy food, on the other hand, can be borne for a long time if fat be given; but the simultaneous deprivation of fat and starch soon induces illness, though albuminates be supplied. The relative proportion of fat to albuminates in the food most easily digested, and at the same time producing the greatest mechanical force, is as 1 to 2; in the potato, it is as 0·1 to 1·5, or as 1 to 15. Further, the starchy matters should be to the nitrogenous as 3 to 1 in the best diet: in the potato, they are as 23·4 to 1·5, or as 14 to 1 nearly. See **MUSCULAR FORCE, ORIGIN OF.**

With regard to salt meat, it must be recollected that the brine, if it has been used several times, occasionally becomes poisonous. The evidence as to the power of diseased

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meat, when eaten, to excite disease, is—except in cases in which entozoa are present—not conclusive. The occasional occurrence of a poison in sausages is well known. The fresh flesh of diseased animals assuredly causes injurious effects in many cases, but not in all. In the early stage of acute inflammatory disease, the meat is not altered, and may be eaten with impunity. The death of sheep from splenic apoplexy or braxy, and from small-pox, renders their flesh unfit for food; but the flesh of cattle destroyed by foot-and-mouth disease and by typhoid fever has been largely used in France without injury. See POISONS: PTOMAINES. As to adulteration of ordinary articles of food, see FOOD.

CLOTHING should preserve the proper heat of the body by protecting it both from cold and heat, and from the injurious action of sudden changes of temperature on the skin. The most important materials of clothing are cotton, linen, wool, silk, leather, and india-rubber. *Cotton*, as a material of dress, wears well, does not readily absorb water, and conducts heat much less rapidly than linen, but much more rapidly than wool. From the hardness of its fibres, its surface is slightly rough, and occasionally irritates a very delicate skin. Its main advantages are cheapness and durability. In merino it is mixed with wool in various proportions, and this admixture is far preferable to unmixed cotton. *Linen* is finer in its fibres than cotton, and hence is smoother. It possesses high conducting and small radiating powers, so that it feels cold to the skin; moreover, it attracts moisture much more than cotton. For these reasons, cottons and thin woolens are much preferred to linen garments in warm climates. *Silk* forms an excellent underclothing, but from its expense, it can never come into general use. *Wool* is superior both to cotton and linen in being a poor conductor of heat, and a great absorber of water, which penetrates into the fibres and distends them (hydroscopic water), and also lies between them (water of interposition). ‘This property of hydroscopically absorbing water is,’ as Dr. Parkes observes, ‘a most important one. During perspiration, the evaporation from the surface of the body is necessary to reduce the heat which is generated by exercise. When the exercise is finished, the evaporation still goes on, and to such an extent as to chill the frame. When dry woolen clothing is put on after exertion, the vapor from the surface of the body is condensed on the wool, and gives out again the large amount of heat which had become latent when the water was vaporized. Therefore a woolen covering, from this cause alone, at once feels warm when used during sweating. In the case of cotton and linen, the perspiration passes through them, and evaporates from the external surface without condensation; the loss of heat then continues. These facts make it plain why dry woolen clothes are so useful *after* exertion. In addition to this, the texture of wool is warmer, from its bad conducting power, and it is less easily penetrated by cold winds.’—*Leather* is used not only for shoes, boots, and

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leggings, but, in cold windy countries, for coats. Leather and sheepskin coats are in common use in Turkey, Tartary, Persia, the Danubian Provinces, and in Canada, where buffalo-skins are often used. For persons specially susceptible to cold, and of delicate organization, a chamois leather jacket worn over or under a flannel waistcoat may be recommended during winter. *India-rubber* clothing must be used with extreme caution. From its being impenetrable to wind, and from its condensing and retaining the perspiration, it is decidedly objectionable; but on the other hand, its protection against rain is a very valuable property. For protection against heat, white is the best color, then gray, yellow, pink, blue, and black. The shape and weight of all articles of clothing should be such as to allow freest action of the limbs, and in no way to interfere by pressure with the processes of respiration, circulation, or digestion.

Attention to the STATE OF THE SKIN is of great importance in a hygienic view. The perspiration and sebaceous matters naturally poured out on the surface of the body, with an intermingling of particles of detached epidermis, fragments of fibres from the dress, dirt, etc., if not removed, gradually form a crust which soon materially interferes with the due excreting action of the skin. There is little doubt that the daily use of the matutinal *tub*, contributes materially to harden the system against attacks of colds, rheumatism, etc. When a tub and sponge are unattainable, a wet towel rubbed over the body, followed of course by a dry one, is a good substitute.

EXERCISE next claims our consideration, and we briefly notice its effects on the different systems of organs. (1) The most important effect of muscular exercise is on the *lungs*, the quantities of inspired air and of exhaled carbonic acid being very much increased. Taking the air inspired in a given time in the horizontal position as unity, a man walking 3 m. per hour inspires 3·22; and if carrying 34 lbs., 3·5; a man walking 4 m. per hour inspires 5; and when walking or running 6 m. per hour, no less than 7. Almost twice as much carbonic acid is exhaled during exercise as during rest. Hence, muscular exercise is necessary for due removal of the carbon; and it is obvious that in prolonged rest, the carbonaceous food must be diminished, or the carbon will be liable to accumulate in the system; and further, that, for strong exercise, carbonaceous food should be freely given. (2) The action of the *heart* rapidly increases in force and frequency during exercise. The increase in the number of beats may range from 20 to 30, and is sometimes much more. After exercise, the heart's action is diminished. Excessive exertion may do harm by inducing pulmonary congestion, and even haemoptysis, palpitation, hypertrophy, valvular disease, and occasionally rupture; while deficient exercise probably tends to induce tuberculous disease of the lung, weakness of the heart's action, and probably dilatation and fatty degeneration. From these facts we learn that when a person commences any new form of exercise or gymnastics, the heart's action

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should be watched, and if the pulse rise to 120 or more, the exercise should for the time cease. (3) The *skin*, by muscular exercise, becomes red from increase of blood in the capillaries, and the perspiration is increased, being at least doubled. The bodily heat is kept down by cutaneous evaporation, which reduces the temperature. During exertion, there is very little danger of chill, but the danger becomes great when the exertion is over, because there is then a rapid fall in the heat of the body, while the evaporation of the skin continues. Hence, while the skin may be freely exposed during exercise, it must be covered immediately afterward, to prevent any feeling of coolness on the surface. (4) The *muscles* grow to a certain limit, but over-exercise of any special group may produce wasting. Care must be taken that the exercise is of such nature that all the muscles, and not single groups, be brought into play; and that in early training, long intervals of rest intervene between the periods of exercise. (5) The effect of exercise on the *mind* is not clearly determined; great bodily activity is often observed in association with full mental activity; but there is some fear that, in our great schools and universities, rowing, and baseball, and football—all of admirable use—are being pressed by rivalry to a degree not helpful to either body or mind. (6) *Digestion* is improved by exercise. The appetite increases, and nitrogenous substances, fats, and salts, especially phosphates and chlorides, are required in greater quantity than in a state of rest. (7) The *change of tissues* is increased by exercise; in other words, the excretions give off increased quantities of carbon, nitrogen, water, and salts. The muscles require much rest for their reparation after exercise, and they then absorb and retain water, which seems to enter into their composition. So completely is the water retained in the muscles, that the urine is not increased for some hours. Hence, there is absolute necessity of water for the acting muscles, and the old rule, held by trainers, of allowing only the smallest possible quantity of fluid must be wrong.

The amount of exercise which should be taken by an adult healthy man is a subject of great importance. Prof. Haughton, in *New Theory of Muscular Action*, calculates that a laboring man daily exerts a muscular force to a degree which may be expressed by saying that it would raise to the height of 1 ft. from 250 to 350 tons. For persons not obliged to labor, the force expended, including that required for ordinary avocations, should average 15 tons, equivalent to walking about 9 m. daily. It is unfortunately impossible to arrange scales of exercise for invalids, women, and children. Prof. Haughton has shown that walking on a level surface is equivalent to raising the  $\frac{1}{20}$  part of the weight of the body through the distance walked. When ascending a height, a man of course raises his whole weight through the height ascended. Using his formula, 
$$\frac{W + WD}{20 \times 2.240}$$
 (where W is the weight of the person, W' the weight carried, D the distance walked 20 the

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coefficient of traction [see **FRICITION**], and 2,240 the number of lbs. in a ton), we obtain as a result the number of tons raised 1 ft.; and on applying it, we get the following table:

Kind of Exercise.	Weight done in Tons lifted one foot.
Walking 1 mile, .....	17.67
" 20 miles, .....	353.4
" 1 mile, and carrying 60 lbs., .....	24.75
" 20 miles, .....	495

Thus, a march of 10 m., with a weight of 60 lbs. (about the weight that a soldier carries when in marching-order, but without blankets and rations), is a moderate day's work. A 20 m. march with this weight is a very hard day's work. As a continuous effort, Prof. Haughton believes that walking 20 m. a day without a load (Sundays excepted) is good work.—On the important subjects of horse-exercise, boating, dancing, gymnastics, etc., see the special works; on the subject of exercise, see **MUSCULAR FORCE, ORIGIN OF.**

The **CONSTRUCTION OF HOUSES**, especially of dwelling-places for the poor, and public lodging-houses, next claims our notice. There can be no doubt that the frequency and fatality of the epidemics of the middle ages were in a great measure due to unhealthful habitations. The houses were usually closely packed in crowded streets; and were often built for the purpose of defense, at a sacrifice of ventilation, lighting, draining, etc. At the present day, with all our boasted civilization, the dwellings of the poor, both in our large towns and in our country villages, are often a disgrace to humanity. In recent years much has been done by benevolence in great cities, for providing far more healthful and commodious dwelling-places for those who can afford to pay but very low rent. Many of these improved dwellings seem fever-proof, and the death-rate has been much lower than in adjacent places. But even without aid of private benevolence, and on a fair business basis, the erection of blocks of improved dwellings for working people has proved remunerative. Five conditions are requisite to healthful habitations, on whatever scale of size or expense: (1) A site dry and not malarious, and an aspect which gives light and cheerfulness; (2) ventilation sufficient to carry off all respiratory contaminations of the air; (3) a system of immediate and perfect sewage removal; (4) due supply and proper removal of water; (5) a construction of the house such that perfect dryness of its foundation, walls, and roof is insured.—On the important subject of sewage, see **SEWERAGE: SEWAGE EARTH CLOSET.**

Another subject closely connected with hygiene is **DISPOSAL OF THE DEAD**. Its importance is evident in view of the changes which the body undergoes after death. A body that has been buried gradually breaks up into a large number of comparatively simple compounds, e.g., carbonic acid, ammonia, sulphureted and carbureted hydrogen, nitrous and nitric acid, and certain more complicated gaseous matters with a very fetid odor, which finally undergo oxidation; while the non-volatile substances usually enter into the soil, and either pass into plants, or

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are carried away by the water percolating the soil. These changes are accelerated by the worms and other low forms of life that usually swarm in decomposing bodies; and the character of the soil materially influences the degree of rapidity of destruction. The bones remain almost unchanged for ages. If a body is burned, decomposition is incomparably more rapid, and different volatile combinations may arise; the mineral salts and a little carbon alone remaining. The question is, What is the best method of disposing of the dead, so that the living may suffer the least? Putting aside the repulsive schemes for turning the dead to commercial account, and the plan of committal to the sea as impracticable except near the coast, there are three methods for consideration—viz., burial in the ground (see BURIAL); burning (see CREMATION); and desiccation—a method as yet only theoretic, but promising (see MAUSOLEUM, NEW).—As to Burial—long the prevalent mode—the air over cemeteries is always contaminated, and water percolating through them is unfit for drinking. The evils are in some degree lessened by making the grave as deep as possible, and by placing not more than one body in one grave. Plants should be freely introduced into every cemetery, for absorption of organic matters and of carbonic acid; and the most rapidly-growing trees and shrubs should be selected, in preference to the slowly-growing cypress and yew. The superficial space allotted to each grave varies in different countries from 30 to 90 ft.; the depth should be at least 6 ft. The grave space for a person above 12 years of age should be at least 9 ft. by 4, and for a child of less than 12 years, 6 ft. by 3. Not less than 4 ft. of earth should be placed over the coffin of an adult, and 3 ft. above that of a child. The time which should elapse before a grave is disturbed for a new tenant varies with the soil and the distance of the body from the surface. Under favorable circumstances, a coffin containing an adult will disappear with its contents in about 10 years; while in a clayey or peaty soil, it will remain a century. It is generally assumed that a period of 14 years is sufficient for the decay of an adult; but long before this time, all will have disappeared but the skeleton. Mortuaries or houses for reception of the dead until the period of the burial, should be provided, at least in cases of death from infectious disease. In parts of Germany, the deposit of the dead in such houses is compulsory.

Among governmental regulations for preventing the spread of infectious and contagious diseases, Quarantine (q.v.) was one of the earliest. Quarantine against yellow fever was instituted in the colony of Mass. Bay as early 1648; a similar precaution was taken in the province of S. C. 50 years later, and in the last year of the same century in Penn. Congress made provision for quarantine first in 1796.—Public attention began to be directed in the United States to the question of sanitation of cities 1847, when the Amer. Med. Assoc. appointed a committee to study and report on the sanitary condition of the principal centres of population. The first state to take action for promoting

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the public health was Mass., whose legislature appointed a committee to consider a plan for effectively checking the spread of disease, and (1850) ordered printed that committee's admirable report. The plan proposed by the committee 'for the promotion of public and personal health' included the establishment of a state board of health and the enforcement of sundry measures of prevention that to this day are reckoned among the efficient agencies of public sanitation. The great epidemic of yellow fever 1853 led to appointment by the Health Board of New Orleans of a commission to investigate the origin and transmission of that disease; to inquire into the condition of the sewerage of the city; and to suggest measures for removing the causes of liability to the infection. A 'quarantine congress,' the first of many, assembled in Philadelphia 1857, at which 26 different seaboard cities were represented. The principal object was to promote uniformity of quarantine regulations. The second congress (1858) was styled a 'quarantine and sanitary convention,' and committees were appointed to propose plans, 1, for promoting 'external hygiene,' i.e., quarantine; and, 2, the sanitation of cities. Thus the objects of the convention were multiplying, and in the 4th convention (1860) among the matters discussed quarantine no longer held the principal place: in fact the physical purification of cities was declared to be of more importance than any measures for exclusion of contagion and infection.—During the civil war sanitary science and the practice of sanitation received unexampled impetus from the pressing needs of the armies and from the wisely directed work of the U. S. Sanitary Commission (q.v.). The Sanitary Congress or Convention intermitted its meetings during the war—or rather continued its labors and held daily meetings in every city, village, and hamlet throughout the whole country; for in the south also there was an organization to render to the Confederate armies such services as were rendered to the Union armies by the U. S. Sanitary Commission.—The public interest in sanitary science awakened by the operations of the Sanitary Commission did not die out after the return of peace: in particular, the lesson taught by the effective sanitation of New Orleans during its occupation by the U. S. military authorities bore fruit. It was seen that to cope with epidemics in great centres of population public authorities armed with ample powers, and guided by the best medical and sanitary counsels, were indispensable. Such public authority was instituted in the city of New York 1866, by act of the state legislature—the Metropolitan Board of Health. To that board is due the warding off, during its first year, of an invasion of Asiatic cholera.—Mass. instituted the first *State* Board of Health 1869, thus at last carrying out the advice of the legislative committee of 1850. Other states followed the example of Mass., the first being Cal., but Va. did likewise the same year, 1871.—The Amer. Public Health Assoc. was organized 1872 for 'the advancement of sanitary science, and the promotion of organizations and measures for the practical

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application of public hygiene.' It has a large membership, of men mostly having theoretic and practical acquaintance with the science and art of sanitation; its meetings are held annually, and its reports and prize essays have done much to develop and popularize sanitary science.

The 'Sanitary Code' of the Health Dept. of New York city fairly represents the measure of power possessed by boards of health in large cities of the United States, and the methods and agencies employed. The Health Dept. of New York is empowered to abate nuisances and suppress manufactures, etc., detrimental to public health; to regulate the sale of poisons; to prescribe the conditions of the inhabitableness of houses or tenements; to enforce due provision of privies and proper maintenance thereof in tenement-houses, manufactories, etc.; to require that all drains, soil-pipes, etc., be adequate for their purposes; to prevent the sale of diseased or offensive, tainted, or unwholesome, or adulterated food; to regulate slaughter-houses; to regulate transit of offal or refuse matters through the streets; to require necessary but offensive manufactures (e.g., gasworks) to conduct their operations in such a way as not to be dangerous or injurious to life or health; to prohibit use of materials liable to decay for filling up or raising the level of any grounds; to prevent the sale of illuminating oils, etc., below the standard of safety; to prescribe regulations for collection and removal of garbage, refuse, etc.; to abate or minimize the smoke nuisance; to take summary measures for preventing the spread of contagious or infectious diseases of animals; to stay the spread of infectious and contagious diseases among the people (one of the means to this end consists in requiring physicians to report to the Sanitary Bureau every case of such diseases within 24 hours; also to report all deaths among their patients from such diseases: similar reports are required of keepers of lodging-houses and hotels, managers of asylums, refuges, etc., masters, chief officers of ships coming into the port, and other persons in like situations); to prescribe rules for unloading from vessels of skins, hides, rags, etc.; to require of the health officers of the port weekly reports of the number of vessels in quarantine, number of persons in the quarantine hospitals, the diseases with which they are afflicted, etc.; to prohibit the removal from place to place within the city of persons sick with small-pox or other contagious disease, except under official supervision; to provide the means of isolating such persons; to enforce vaccination; to regulate the disposal of dead bodies and the transit of dead bodies through the city; to require of coroners reports of cases coming before them; also to require from clergymen, magistrates, and other persons who may perform a marriage ceremony, detailed returns of the age, condition, residence, etc., of the parties; and from physicians, midwives, etc., returns of births; to make sanitary regulations for management of lines of public conveyance. Every person who omits or refuses to comply with the provisions of the

## SAN JACINTO—SAN JOSÉ.

sanitary code is ‘liable to arrest, suit, penalty, fine, and punishment’ provided and declared in the acts creating the dept. and defining its powers. When the board demands that any nuisance be abated, and the person or persons chargeable fail to comply, the board abates it by its own officers. See HEALTH (National Board—State Boards—Municipal Boards); VITAL STATISTICS; SEWERAGE: WATER SUPPLY.

SAN JACINTO, *sán ja-sín'tō*, BATTLE OF: near San Jacinto Bay, Texas, 1836, April 21, by Texan and Mexican soldiers. Harrisburg, then the seat of the Texas govt., was burned by the Mexicans in the night, April 18. The Texan army, numbering only 783, was commanded by Gen. Houston; and the Mexicans, about 1,600, were led by Gen. Santa Anna. Houston retreated toward the San Jacinto ferry; and Santa Anna, to prevent his crossing, brought his force to the bay. There was some light skirmishing April 20. The following day, with the cry, ‘Remember the Alamo!’ the Texans made a violent charge upon the Mexican force, which they surprised and quickly drove from the field. Santa Anna was afterward captured, but was paroled. The Mexicans lost about 600 killed and several hundred prisoners; the Texan loss was only 8 killed and 25 wounded.—The rallying cry, ‘Remember the Alamo!’ referred to a cowardly massacre a few weeks previous of the six survivors of 140 Texans and helpers from the United States, who had been captured by a Mexican force of 4,000, at a fort near San Antonio.

SANJAK, *sán'ják*, or SANGIAC, n. *sán'ji-ăk* [Turk. a standard]: in Turkey, term denoting a subdivision of an *Eyalet* (q.v.), because the ruler of such a subdivision, called *sanjak-beg*, is entitled to carry in war a standard of one horse-tail. The sanjak is frequently called a *liva*, and its ruler a *mirmiram*. SANJAKATE, same as Sanjak.

SANJAK-SHERIF, *sán'jük-shé-réf*: see FLAG OF THE PROPHET.

SAN JOAQUIN, *sán hwá-kēn'*, RIVER: river of Cal.; rising in the Sierra Nevada, flowing first s.w. to its junction with the outlet of Lake Tulare, thence n.w. to its junction with the Sacramento river, 50 m. from the Bay of San Francisco. It receives numerous branches from the Coast Range of mountains and the Sierra Nevada. Entire length 350 m., for only a small portion of which it is navigable for large vessels.

SAN JOSÉ, *sán hō-sā'*: city, cap. of Santa Clara co., Cal.; on the Central and the Southern Pacific railroads; 6 m. s.e. of San Francisco Bay, 28 m. e. of the Pacific Ocean, 47 m. s. of San Francisco; 5 sq. m. It is connected by railroad with San Francisco, the ocean, and the s. part of state, and is a well-built modern city. In 1903 the total bonded debt was \$200,625, assessed valu. of real property, \$14,100,063; per. \$1,597,385; tax rate \$22.85 on \$1,000; and 1891, Mar., it had 1 national bank (cap. \$300,000), 3 savings (cap. \$650,000), and 1 state (cap. \$200,000); and 3 daily, 6 weekly, and 2 monthly periodicals. The

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streets and sidewalks are broad, chiefly of concrete and asphaltum; there are two public parks, one of 400 acres noted for its beautiful rugged scenery and its numerous mineral springs; electricity is used principally for street lighting; and horse and electric street railroads furnish quick transit to suburban towns. Notable buildings include a handsome Corinthian court-house (cost \$200,000); jail (\$80,000); State Normal School, in a square of 28 acres (\$150,000); College of Notre Dame (Rom. Cath.) for young ladies (building and ground (\$600,000); new City-hall (\$75,000); Univ. of the Pacific (Meth. Episc.), about 1½ m. from S., with 16 acres of ground, and 5 large buildings; public library; and 8 public school buildings (\$15,000—\$25,000 each). There are 10 churches (including the second handsomest Rom. Cath. cathedral in the state), divided among the Bapt. (\$20,000), Meth. Episc. South (\$18,000), German Meth., Hebrew, Presb., Prot. Episc., Friends, and Rom. Cath.; while a Unit. Soc. and a Soc. of Free Thought held meetings in public halls. Near S. on the e. is Mount Hamilton, crowned with the buildings of the great Lick Observatory (a.v.). and on the w. is the Stanford Univ., organized 1891, erected by Leland Stanford at a cost of more than \$20,000,000, as a memorial to his deceased son. The industries comprise manufacture of woolen goods, foundry products, flour, beer and ale, distilled spirits, canned and dried fruit, silk, furniture, carriages and wagons, wine, machine-shop products, and tobacco. Pop. (1880) 12,567; (1890) 18,060; (1900) 21,500.

**SAN JOSE:** city, cap. of Costa Rica, Central America, midway between the Pacific and Atlantic oceans. It stands on a table-land 4,500 ft. above sea-level, contains a number of important institutions, and has active trade. Its port is Punta Arenas, Pacific coast. Pop. (1901) 23,903.

**SAN JUAN ISLAND.** island in San Juan co., Washington, in Washington Sound, s. of the Gulf of Georgia, near lat.  $48^{\circ} 30'$  n. and long.  $128^{\circ}$  w.; 15 m. in length; about 60 sq. m. It has coal and limestone, and in the s. the soil is fertile, but the n. part is mountainous and covered with valuable timber. There is excellent fishing along the coast. Several smaller islands belong to the same county.—S. J. is noted for the dispute between Gt. Britain and the United States regarding the boundary established 1846, which involved the ownership of the island, and was known as the San Juan Boundary Question. In 1848 Gt. Britain made the claim that the line passed s. of S. J. through Rosario Straits; the United States contended that it passed along lat.  $49^{\circ}$  n. from Lake of the Woods and turned southward through the Canal de Haro, and Straits of Fuca in order only to give Gt. Britain the whole of Vancouver's Island, part of which would have been given to the United States if a straight line had been maintained. The British occupied the island 1859, and the United States govt. promptly sent a force to secure its rights. A friendly agreement was reached and the British occupied the n. and the Americans the s. part of the island. The proposal to submit the matter to arbitration was several times rejected.

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by the United States; but 1871, during the session of the Alabama claims commission at Washington, it was agreed to submit the question to the king of Prussia, who sustained the claim of the United States. The British force was withdrawn 1872, Nov.

SAN JUAN, *sán hwán*, RIVER: river in Nicaragua, though which the waters of Lake Nicaragua flow into the Caribbean Sea, at Greytown. It is about 120 m. long, flows s.e., is difficult of navigation on account of rapids, has several branches; and a wide delta with three channels, of which one, the San Juan, could be used as part of the Nicaragua canal to connect the Atlantic and Pacific.

SAN JUAN DE POR'TO RI'CO: capital of the island of Porto Rico and of the province of Bayamon, and important sea port. It is picturesquely situated on an island in a bay on the n. coast. The harbor is safe and commodious. The city is well drained, and has an excellent water supply. It has a cathedral, bishop's palace, military hospital, arsenal, theatre, a seminary and many schools. Was founded by Ponce de Leon in 1511. In 1898, July, United States forces occupied the city. Pop. (1899) 32,648.

SANK: pt. of SINK, which see.

S'ANKARA, *sán'ka-ra*, Hind., *sún'kúh-rúh*, or SAN KARÂCHÂRYA, i.e., the *áchârya*, or spiritual teacher, S'ankara: one of the most renowned theologians of India: assigned by tradition to a date about B.C. 200; but with more probability, to the 8th or 9th c. after Christ. He was b. prob. in Kerala or Malabar, and of the caste of the Nambûri Brahmans; and he founded the sects of the *Das'nâmi-Dand'ins* (see SAIVAS). His commentaries have exercised great influence on the religious history of India; indeed he was regarded as an incarnation of the god S'iva, and was fabled to have worked several astounding miracles. See H. H. Wilson, *A Sketch of the Religious Sects of the Hindus*; works, I. (edited by Dr. R. Rost, 1862), pp. 197, ff.

SANKEY, *sangk'i*, IRA DAVID: evangelist: b. Edinburgh, Penn., 1840, Aug. 28. In early life he became interested in Sunday-school and other religious work, and his fine voice and ability as a singer soon attracted attention. He met Dwight L. Moody (see MOODY, DWIGHT LYMAN) at an international convention of the Young Men's Christian Assoc., engaged with him in evangelistic work in Chicago, in Gt. Britain 1873-75 and 1883-4, and at various times in the principal cities of the United States. He not only sang but made frequent addresses, and labors in inquiry meetings. He has composed many popular melodies, and compiled a volume of *Sacred Songs and Solos*, of which there have been several translations, and which has had immense sale. In 1903 Mr. S. became blind.

## SÂNKHYA.

SÂNKHYA, *sâng'khyâ* [Skr. *sankhyâ*, synthetic reasoning]: name of one of the three great systems of orthodox Hindu philosophy: see SANSKRIT LITERATURE. It consists of two divisions—the Sânkhya, properly so called, and the YOGA (q.v.); and like the other systems (see MÎMÂNSÂ and NYÂYA), it professes to teach the means of attaining eternal beatitude, or complete and eternal exemption from every sort of ill—viz., the discriminative acquaintance with *tattva*, or the 25 true principles of all existence. (1), *Prakr'iti* or *Pradhâna*, substance or nature: it is the universal and material cause; eternal, indiscrete, inferable from its effects; productive, but unproduced. Its first production is (2) *Mahat* (lit. the great), or *Buddhi* (lit. intellect), or the intellectual principle, which appertains to individual beings. From it devolves (3) *Ahankâra* (lit. the assertion of 'I'), the function of which consists in referring the objects of the world to one's self. It produces (4–8) five *tanmâtrâ*, or subtle elements, which themselves are productive of the five gross elements, viz.: space, air, fire, water, earth (20–24). Ahankâra further produces (9–13) five organs of sensation, and (14–18) five organs of action; and lastly (19) *manas*, the organ of volition and imagination. The 25th principle is *Purusha*, or soul: it is neither produced nor productive; it is multitudinous, individual, sensitive, eternal, unalterable, and immaterial. The union of soul and nature takes place for the contemplation of nature, and for abstraction from it, 'as the halt and the blind join for conveyance and for guidance, the one bearing and directed, the other borne and directing.' From their union, creation is effected. The soul's wish is fruition or liberation. In order to become fit for fruition, the soul is in the first place invested with a *linga-s'arîra*, or *sûkshma-s'arîra*, a subtle body, composed of *buddhi* (2), *ahankâra* (3), the five *tanmâtrâs* (4–8), and the eleven instruments of sensation, action, and volition (9–19). This subtle body is affected by sentiments, but being too subtle to be capable of enjoyment, it becomes invested with a grosser body, composed of the five gross elements (20–24), or, according to some, of four, excluding *âkâs'a* (space), or, according to others, of one alone—viz., earth. The grosser body, propagated by generation, perishes; the subtle frame, however, transmigrates through successive bodies, 'as a mimic shifts his disguises to represent various characters.' Some assume, besides, that between these two there is intermediately a corporeal frame, composed of the five elements, but tenuous or refined, the so-called *anusht'hâna s'arîra*.

The Sânkhya proper does not teach the existence of a supreme Being, by whom Nature and Soul were created, and by whom the world is ruled. It was therefore accused by its opponents of denying a Creator; and it is the special object of the *Yoga* system to remove this reproach by asserting his existence, and defining his essence (see YOGA). The truth is, that the S. proper merely maintains that there is no proof for the existence of a supreme Being; it is a system of agnosticism. It underwent a mytholog-

## SANKT JOHANN—SAN LUIS POTOSI.

ical development in the Purâns (q.v.), in the most important of which it is followed as the basis of their cosmogony. The most important development of the S. is that by the Buddhistic doctrine, which is mainly based on it. The S. is probably the oldest of Hindu systems of philosophy; for its chief principles are, with more or less detail, contained in the chief Upanishads (q.v.: see also VEDA); but whether the form in which it has come down to us, and in which it is now spoken of as the Sâṅkhyâ, is also older than that in which the other systems are preserved, is not known.

The reputed founder of the actual Sâṅkhyâ is *Kapila* (lit. tawny), who is asserted to have been a son of Brahmâ; or, as others prefer, an incarnation of Vishn'u. He taught his system in Sûtras (q.v.). The best summary of the S. doctrine is by I's'wara Kr'ishn'a, in *Sâṅkhyâ-Kârikâ*, ed. by H. H. Wilson, with transl. of the text by H. T. Colebrooke (Oxford 1837). Among essays on the S. philosophy, the best is by H. T. Colebrooke, reprinted from the *Transactions of the Royal Asiatic Soc.*, in his *Miscellaneous Essays* (London 1837), vol. I., p. 227, ff.

SANKT JOHANN, sâṅkt yô'hân, or ST. JOHANN: town in Prussia opposite Saarbrücken—of which it is a recent offshoot, and with which it forms one community; total pop. nearly 22,000. Pop. of S. J. about 12,000. See SAARBRÜCKEN.

SANKT PÖLTEN: see ST. PÖLTEN.

SANKWORK, n. sâṅgk'wérk [probably a corruption of *scamp-work* (see SCAMP)]: the slang and familiar name for soldiers' clothes, made for the contractors at a low rate of pay.

SAN LUCAR DE BARRAMEDA, sán lô'kár dâ bâr-rá-mâ'thâ: seaport of Andalusia, in the modern province of Cadiz, 18 m. n. of the port of Cadiz; on a sandy, undulating tract on the left bank of the Guadalquivir at its mouth. It is a dull, decaying place, notable chiefly as the mart whence inferior and adulterated vintages are exported as sherries. Pop. 23,000.

SAN LUIS DE LA PUNTA, sán lô'-és' dâ lá pón'ti: chief town of the province of San Luis in the Argentine Republic, 445 m. w.n.w. from Buenos Ayres, on a river which falls into the large salt lake of Bevodero. S. has trade in horses, hides and furs. Pop. (1895) 16,000.

SAN LUIS POTOSI, sán lô'-és' pô-tô-sé': state in e. Mexico; of irregular form; bounded n. by Coahuila, e. and n.e. by Nuevo Leon, Tamaulipas, and Vera Cruz, s. by Hidalgo, Querétaro, and Guanajuato, and w. by Zacatecas; 27,500 sq. m. Except in the s.e., where there are low plains, the surface is elevated and there are ranges of mountains. There are large deposits of precious metals, valuable forests, and good pastures. There are various manufactures and the mines are worked to some extent. Large numbers of cattle and sheep are kept, and corn, wheat, and other grain are cultivated. Cap. San Luis Potosi.—Pop. of state 1889 540,441; (1900) 582,486.

## SAN LUIS POTOSI—SAN MARINO.

**SAN LUIS POTOSI**, *sán ló-és' pō-tō-sé'*: city in Mexico, cap. of the state of S. L. P.; near the source of the river Tampico, 200 m. w. of the port of Tampico on the Mexican Gulf, with which it was connected by railway 1885. It stands on a plateau 6,250 ft. above sea-level, is well built, containing many handsome edifices, chiefly ecclesiastical, and is surrounded by gardens. Its markets are well supplied, and it has considerable trade with the neighboring states. Shoes, hats, and hardware are the chief manufactures, and woven fabrics and liquors are imported from Tampico. Pop. (1889) 62,573; (1900) 61,019.

**SAN MARCO IN LAMIS**, *sán márkō īn lá'mēs*: town of s. Italy, province of Foggia, 18 m. n.n.e. of Foggia. It has trade in corn, wine, oil, and silk. Pop. more than 15,000.

**SAN MARINO**, *sán má-rē'nō*, or **MARI'NO**: one of the most ancient and most limited republican states in the world, consisting of a craggy mountain 2,200 ft. high amid the lesser ranges of the Apennines, and encircled by provinces formerly belonging to the Pontifical States. It comprises the town of S. M., and several villages in the adjacent territory: 33 sq. m. The climate is healthful, but, owing to its exposure, high winds and frequent rains prevail. The town of S. M. is built on a slope of the mountain; it is accessible by only one road, and is protected by walls and towers; it contains several squares and streets, rudely paved, and various public buildings, including five churches, a town-hall, a theatre, the governor's palace, convents, museums, and hospitals. The inhabitants are noted for hospitality, sobriety, industry, and general morality. They are sensitively jealous of their rights, and cling with tenacity to their territorial and legislative independence. Their chief trade is in agricultural produce and cattle.

The early history of the republic is obscure. During the mediæval wars of Italy, M. had its pygmy feuds and factions, which seem to have been none the less envenomed from the pettiness of their arena. In 1740, the democratical form of govt. was securely guaranteed against further assault. The rights of this miniature state were scrupulously respected by Napoleon during his Italian campaign. The govt., designated the Sovereign Grand Council (*Generale Consiglio Principe*), is composed of 60 members, one-third nobles. From this number are selected the 'Council of Twelve' (two-thirds from the town and the rest from the country), who, with the assistance of a jurisconsult, decide in questions of the 2d and 3d instance. The representatives of the state are termed Captains-regent (*Capitani Reggenti*). They are chosen, the one from the party of the nobles, the other from the bourgeoisie. They each hold office six months. The army, or rather the militia of the republic, numbers 950 men. Pop. (1874) 7,816; (1886) 8,000; (1899) 11,002.

## SAN MARTIN—SAMPO.

**SAN MARTIN**, *sán má'r-tén'*, JOSÉ DE: general: 1778, Feb. 25—1850, Aug. 17; b. Yapeyú, Argentine Republic. He was educated in Spain for military life and had reached the rank of lieut.col. when the revolt against the royalists caused his return to S. America 1811. He organized the Argentine insurgents, won many victories; led an expedition which secured the independence of Chili, but declined the presidency of that country, though he organized its govt.; invaded Peru, seized Lima 1821, drove the Spaniards from the coast and took the title 'Protector of Peru'; but the following year, after a consultation with Gen. Bolivar, resigned and secretly went to Europe, where he remained in obscurity till his death 28 years later, at Boulogne, France.

**SAN MATEO**, *sán má-tā'ō*: town of Venezuela, S. America, dept. of Cumana; 50 m. s.s.w. of the town of Cumana. Pop. 7,000.

**SAN MIGUEL**, *san mē-ghē'l'*: town of Central America, in San Salvador, about 80 m. e. of the city of San Salvador. It is said to be the chief trading town in Central America. At its annual fair of La Paz, 15,000 strangers assemble, and business to the amount of \$2,000,000 is transacted. About five m. w. of San M. is a volcano, 6,680 ft. high, occasionally in eruption.—Ordinary pop. 12,000.

**SAN MINIATO**, *sán mē-nē-ā'to*: city of central Italy, province of Florence, 21 m. w.s.w. of the city of Florence. It is a fine old episcopal city, adorned with many monuments and famous in the history of the Florentine Republic. Pop. 2,500.

**SANNAZRO**, *sán-ná-dzā'ro*, JACOPO: Italian poet: 1458, July 28—1530, Apr. 27; b. Naples; of Spanish descent. Love for a young lady, Carmosina Bonifacia, whom he celebrated under the names of Harmosine and Filli, called into exercise his poetical faculty. The lady being insensible to his passion, he went on foreign travel, and during his absence composed the *Arcadia*, a medley of prose and verse, which Tiraboschi, historian of Italian literature, praises highly; and which went through 60 editions, and gave its author the reputation of an Italian classic, though to modern readers it seems insipid. S., after his return to Italy, was invited to the Neapolitan court.

**SAN NICANDRO GARGANICO**, *sán nē-kán'dro gár-gā-né'ko*: town of s. Italy, province of Foggia, 26 m. n. of the city of Foggia; on Mt. Gargano, being one of the most populous towns among those mountains. The lands belonging to it are very fertile, and great herds of cattle and sheep are reared there. It trades in grain, wool, and wine. Pop. 8,186.

**SAN NICOLAS**, *sán nē'ko-lás*, or **SAN NICOLAO**, *sán nē-ko-lá'o*: one of the Cape Verd Islands (q.v.).

**SANPO**: see DIHONG: BRAHMAPUTRA.

## SAN REMO—SAN SALVADOR.

SAN REMO, *sân rā'mō*: city of n. Italy, province of Porto Maurizio, 27 m. e.n.e. of Nice, on the slope of a rising ground on the shores of the Mediterranean. Its fine cathedral, the Santurio della Guardia, and the Santuario dell' Assunta are worthy of notice, the last having four handsome pillars of alabaster. The palace of the Marquis Borrea D'Olmo contains a fine picture-gallery. There is a seminary for priests, besides a college and many schools. Through the little harbor there is brisk trade in oils and lemons. Nine foreign consuls reside in the town. S. R. is an ancient city, obscure in its origin. In 1170, it was self-governed, and made an alliance with the Genoese against the Pisans. One of its bishops afterward sold it to Genoa.—The location is protected from n. winds by lofty hills, and has a fine climate. ‘San Remo is perhaps the mildest situation on all the Riviera. Here palms, lemon, and orange-trees grow with the greatest luxuriance, and the fruit of the date palm almost attains maturity.’—Murray's *Handbook*. In recent years, it has been largely resorted to by English visitors, and several new and excellent hotels have been erected, contrasting with the picturesque houses of the ancient towns. Pop. about 16,055.

SAN ROQUE, *sân rō'kā*: town of Spain, in the modern province of Cadiz, on the Bay of Gibraltar, eight m. n.n.w. of the town of that name. The salubrity of the climate, and the cheapness of living, have attracted many foreign families, especially English. Pop. about 8,729.

SANS, prep. *sánz* [F. *sans*, without—from L. *sīnē*]: in *OE.*, without. SANS-CULOTTES, *sanz' kū-lōt'* [F. without breeches]: fellows without breeches; contemptuous name applied to the Revolutionists of France in the time of Louis XVI. (see below). SANS-CULOTTERIE, *sanz' kū-lōt'rē*, the French Revolutionists as a body; their opinion. SANS-CULOTTIST, n. *sanz' kū-lōt'ist*, extreme republican; extreme revolutionist. SANS-CULOT'TISM, n. *-tōz̄m*, extreme republican principles: see SANS-CULOTTES.

SAN SALVADOR': island of the Bahama group; first American land seen by Columbus; long supposed to be the same with Cat Island; now believed to be Watling's Island (q.v.): see BAHAMAS.

SAN SALVADOR': town in Brazil: see BAHIA.

SAN SALVADOR': city, cap., of the republic of Salvador (q.v.); founded 1589, supplanting a town built 1528 by a brother of Pedro de Alvarado. It was the cap. of the Union of Central America 1823-39. In 1854 it was a fine city, with numerous good buildings, and pop. more than 30,000; but on the night of 1854, Apr. 16, it was destroyed by earthquake, and about 100 lives were lost. 1855, Jan., it again became the seat of govt. Violent shocks of earthquake 1879-80 did damage here and wrought remarkable changes around Lake Hopango. The trade of S. S. is carried on mostly through the port of La Libertad, about five m. distant.—Pop. (1891) 20,000; (1901) 59,540.

## SAN SALVADOR—SANSCÂRA.

SAN SALVADOR', or BANZA, *bân'zâ*—the former the Portuguese, the latter the native name: town of Africa, cap. of Congo (q.v.) ; 120 m. s.e. by e. from the mouth of the estuary of the river Congo, in a mountainous district near the source of the river Lelunda. Pop. 20,000.

SAN SALVADOR : see SALVADOR.

SANSANDING, *sân-sân-dîng'* : large town in n.w. Africa, in Bambarra, about 20 m. n.e. of Sego, on the left bank of the Niger, here called the Joliba. There is considerable trade in salt, beads, coral, gold-dust, and cotton cloth. Pop. 10,000 to 11,000.

SANSCÂ'RA, or SANSKÂ'RA (lit. completing, perfecting) : name of the ten essential rites or ceremonies of the Hindus of the first three castes, being the ceremonies to be performed at stated times from the conception of a child till the completion of his studies and his marriage.

## SANS-CULOTTES—SAN SEBASTIAN.

**SANS-CULOTTES**, *sānz-kū-lōts'* [Fr., 'without breeches']: name given in scorn, at the beginning of the French Revolution, by the court party to the democratic 'proletaires' of Paris. The latter accepted this superfine reproach with sardonic pride, and the term soon became the distinctive appellation of 'good patriots,' especially as these often made a point of showing contempt for the rich by neglecting their apparel, and cultivating rough and cynical manners.—This is the current interpretation in England and America (as in Carlyle's works); but it should be observed that Littré, best authority on French etymology makes no mention of breechlessness in the sense of raggedness in his definition of the word; but, on the contrary, says that the S. 'were so called because they gave up the knee-breeches in fashion during the *ancien régime*, and took to wearing trousers or pantaloons.' The other notion of raggedness must have been tacked on later by a wilful pun. Toward the close of the Convention, the name, connected as it had been with all the sanguinary excesses of the period, fell into bad odor, and disappeared.

**SAN SEBASTIAN**, *sān sā-bás-tē-án'*: rising seaport city in n. Spain, cap. of the Basque province of Guipuscoa, 381 m. n.n.e. of Madrid (402 m. by the North of Spain railway). It is on a peninsula, at the s. base of a conical hill, Mont Orgullo, 400 ft. high, commanding a most striking view, and crowned with a castle strong enough to have obtained for itself the name of the Gibraltar of n. Spain. Since its almost total destruction during the Peninsular War, the town has been rebuilt on a rectangular plan. The streets are narrow, bordered by high houses with curtained balconies in front. E. of the town is a confined gulf, formed by the embouchure of the Urumea; and on the w. is a roadstead, protected against enemy and tempest by the Isle of Santa Clara, and a series of rocks, which offer to vessels only a narrow and dangerous pass. The roadstead is bordered by a beautiful shore, which, as a watering place, attracts visitors from all parts of the country. The town communicates with the mainland by a narrow tongue of land, and by a bridge across the Urumea, connecting S. S. on the peninsula with the railway station on the mainland. By the North of Spain railway, opened 1864, the town is in direct communication with Madrid and Paris. Commerce is increasing. Nearly 200 vessels, of about 50,000 tons, yearly enter and clear the port; annual value of importis, about \$2,092,000; exports, about \$355,000. The exports are principally of wool, flour, wine, cutlery, firearms, copper-ore, and lead; imports, salted fish, sugar, silk and cotton and linen goods, cocoa, machinery, etc. Pop. (1887) 29,047; (1900) 37,812.

S. S. has suffered numerous sieges. The most memorable was in 1813, when S. S. was defended against Wellington by a French garrison of 3,000 men. When the defenders surrendered, 5,000 of the English troops had been killed or wounded: and the victors in spite of their officers, but according to the usage of war, committed disgraceful excesses.

## SAN SEBASTIAN—SAN SEVERINO.

SAN SEBASTIAN: saint; who lived in the 3d c.; celebrated martyr of the early church, whose memory is venerated in both branches of the church, east as well as west (though the scene of his martyrdom was the city of Rome), and whose story has formed one of the most popular themes of Christian artists from earliest times. His history is contained in the so-called acts of his martyrdom, which, though partaking of the legendary tone, are regarded as authentic, not only by Baronius and the Bollandists, but also by Tillemont and others of the more critical schools of eccles. history. S., according to this narrative, was born at Narbonne and educated at Milan. Although a Christian, he entered the Roman army, without revealing his religion, and with the view of being enabled, by his position, to assist and protect the Christians in the persecution. In this way he supported and comforted many of the martyrs in Rome; and he even converted Nicostratus, keeper of the prison in which the martyrs were confined, and his wife, Zoe, to whom, according to the story, he miraculously restored the use of her speech, after she had been dumb six years. Still unrecognized as a Christian, S. rose to high favor under Diocletian, while the grateful pontiff, Caius, named him ‘Defender of the Church.’ At length came the time for his open profession of his faith. Diocletian used every effort to induce him to renounce the Christian creed, but in vain; and in the end he was condemned to be put to death by a troop of Mauritanian archers, who transfixed him with numberless arrows, and left him as dead. But a Christian lady, Irene, finding that life was not extinct, had the body removed to her house, where life was restored; and though the Christian community desired to conceal his recovery, S. again appeared in public before the emperor, to profess his faith in Christianity. Diocletian condemned him to be beaten to death with clubs in the amphitheatre; and his body was flung into one of the sewers of the city, in which it was discovered, according to the Acts of Martyrdom, by means of an apparition, and carried by a Christian lady, Lucina, to the catacomb which is still called by his name. The date of his martyrdom was 288, Jan. 20. By the Greeks the feast is held Dec. 20. The festival was celebrated with great solemnity in Milan as early as the time of St. Ambrose; and it was observed in the African Church in the 4th c.—Another saint of the same name is said to have suffered martyrdom in Armenia.

SAN SEVERINO, *sán sā-vā-rē'no*: city of central Italy, province of Macerata, 15 m. w.s.w. of the city of Macerata. It is well built, and has handsome palaces, the finest of which are the Palazzo Comunale, and that of the bishop. The neighborhood produces exquisite wine, oil, and fruit, and cattle are reared on the pasture grounds. Pop. 4,000.

## SAN SEVERO--SANSKRIT.

**SAN SEVERO**, *sán sā-vā'ro*: city of s. Italy, province of Foggia; in a delightful and fertile open country, producing abundant grain, tobacco, and wine, and affording rich pasturage. It was formerly the chief town of the Capitanata. In 1799, it was taken, and nearly destroyed by the French. The cholera committed fearful ravages here 1865.—Pop. about 19,756.

**SANSEVIE'RA ZEYLANI'CA**: see BOWSTRING HEMP.

**SANSKRIT**, or **SANSKRIT**, *sān'skrīt* [from Skr. *sam* = Gr. *syn*, 'with, together,' and *kr'ita*, 'done' (cognate with Lat. *cres*), with an epenthetic *s*, imparting emphasis to the sense of the compound; hence, 'thoroughly done, finished, accomplished']: ancient and still the literary language of India, and radically connected with the various dialects of Hindustan—also allied to the principal European languages; the language in which the whole sacred literature of the Hindus and by far the greatest amount of their numerous ritual, legal, poetical, and scientific works is written. **SANSKRITIST**, n. one learned in the anc. Skr. language.—*Sanskrit* belongs to that stock of languages commonly called Indo-European, or Indo-Germanic, or Aryan, which includes the Indian, Medo-Persian, Græco-Latin, Germanic, Lithuanian-Slavonian, and Gallo-Celtic families. It is therefore intimately allied to the ancient and modern languages comprised in each of these families, itself being the parent of the *Prākr'it* (q.v.) dialects, the *Pāli* (q.v.), and the languages spoken in n. India. Compared with the ancient languages kindred with it, S. has come down to us in a preservation and development so much superior to theirs, that it must be regarded as the principal means for our understanding of the affinity, and in general the linguistic laws which pervade the structure of these languages. The essay of Franz Bopp *Ueber das Conjugations System der Sanskrit Sprache* 1816, May 16, began a new era in the study of language. See PHILOLOGY: BOPP.

There are two great periods into which the history of the S. language may be conveniently divided: the first embracing the language as contained in the Vedic hymns (see VEDA); the second, that represented by the so-called classical S., in which the epic works, the law codes, and the later literature are written. Between the two there is a transition period of the language, to which the Brāhmaṇa and ritual portion of the Vedas, and the Upanishads, may be assigned. In the language of the Vedic hymns, the grammar is less developed and much less settled than in the classical S.; it contains, moreover, many forms which at the second period became obsolete, or disappeared from use; the structure of its sentences, too, is simpler, though it is more elliptical than in classical poetry. Another main difference between the two periods is in the sense of its words. Though this is the same in many words of the Vedic hymns and the classical literature, still there are numerous words, which, though the same in form at both periods, have a sense which differs according as it belongs to the one or the other class of writings. The difficulty

## SANSKRIT LITERATURE.

thus presented by the Vedic hymns is in great measure removed by the commentators who explain the meanings of the Vedic words, and, in doing so, follow tradition, which, considering the peculiarities of Hindu history, and also internal evidence, is probably immemorial, therefore the safest if not the only guide in the understanding of the oldest Vedic works. That their explanations may have become unsafe in some instances, would be but natural; but it is certain that these instances are rare exceptions; and it is certain likewise that when modern Sanskritists—and several of these only imperfectly acquainted with S. grammar—have attempted to supersede those traditional meanings by interpretations which they suppose better suited to the context, or to some assumed etymology of their own, their rendering may better adapt the Vedic to the classical vocabulary, but is sure to falsify that understanding which the Hindu mind had of its oldest and most sacred works, and on which its further historical development is based. In the transition period of the Brâhman'a and ritual portion of the Vedas and the Upanishads, grammar and vocabulary offer similar difficulties to those of the Vedic hymns; but though for this reason the aid of the commentaries is likewise indispensable, they are much less numerous; and in those works of this extended period, composed probably at the classical epoch, the difference between the two is even inconsiderable. In comparing S. with kindred languages, it is therefore necessary not to lose sight of these periods of the language, and of their peculiarities.

**SAN'SKRIT LITERATURE:** ancient literature of India (see **SANSKRIT**, above). The most natural, and, at the same time, most scientific distribution of S. L. would be that according to the dates at which its writings were composed. The actual condition of Sanskrit philology, however, renders such a course impossible; for, except very few works, no date whatever is known to which they could be safely assigned. (See **INDIA—Religion: VEDA**.) In spite, therefore, of an apparent plausibility with which some authors have propounded a regular literary chronology of Sanskrit works, even with figures or dates appended, the general reader will do well to consider all such dates imaginary. Under these circumstances, the only possible arrangement of S. L. is that suggested by the contents irrespectively of date of composition; but, under each head, in that order which, within large margins, may suggest consecutiveness.

1. *Religious Literature.*—It comprises, in the first place, the Vedas, and the mystical, philosophical, and ritual works connected with them (see **VEDA: UPANISHAD**); secondly, the PURAN'AS (q.v.) and TANTRAS (q.v.), besides prayer-books and smaller works, and treatises of less importance relating to the modern worship, based on the two latter classes of works.

2. *Law Literature.*—It is comprised under the name of *Dharmaśāstra* (from *dharma*, law—religious and civil—and *sāstra*, book), and its origin is traceable to the ritual

## SANSKRIT LITERATURE.

Sûtras relating to the Vedas. A complete Dharmas'âstra consists of three portions: the first treating of *Achâra*, or 'established rules of conduct'; the second treating of *Vyavahâra*, or judicature, including law, private and criminal; the third, on *Prâyas'chitta*, or penance. The chief extant representatives of this class are the codes of MANU (q.v.) and YÂJNAVALKYA (q.v.). Less complete than the latter is the code of PARÂS'ARA (q.v.); but it deserves special mention, as the modern Hindus consider it to have been especially composed for the requirements of the Kaliyuga, or the present mundane age. For practical purposes, the chief actual authorities are the commentaries on Manu, and the digests which have grown up from them. Among the former, the MITÂKSHARÂ (q.v.) occupies the principal rank.

3. *Poetical Literature*.—(a.) The two great epic poems: see RÂMÂYAN'A: MAHÂBHÂRATA.

(b.) *The Modern Epic Poems*.—Their subject-matter is entirely borrowed from the two great epic poems and other legendary works; and their only merit consists in the art bestowed by their authors on the versification and whatever relates to the æsthetical canon of Hindu poets; which has no accord with our poetical standards. Minute descriptiveness, elaborateness of diction, and an abundance of figures of speech, are some of the characteristics of these poems. The following are the *Mahâ-kâvya* or great poems of this class: the *Raghuvans'a* and *Kumârasambhava*, by Kâlidâsa (q.v.); the *Nalodaya*; the *Bhat'tikâvya* or the poem by Bhat'ti; the *S'is'upâlabhadha*, by Mâgha; the *Naishadîyacharita*, by S'riharsha; the *Kirâtârjunîya*, by Bhâravi; and the *Râghava-Pân'davîya*, by Kavirâja.

(c.) *Lyric and Erotic Poetry*.—Several works of this class are more of a descriptive character. The principal are: the *R'itusanhâra*, a description of the seasons, attributed to Kâlidâsa (q.v.); the *Meghadûta*, or the cloud-messenger, also supposed to have been written by Kâlidâsa; the *Amarûs'ataka*, or hundred stanzas of Amaru, on amatory feelings and scenes, whose natural sense commentators have twisted into one of mystical character, so as to make them appear less objectionable, especially as they were attributed to S'ankara (q.v.); the *Bhâminîvilâsa*, by Jagannâtha Pan'ditarâja, in four books; the *Gîtagovinda*, by Jayadeva, who lived probably in the 12th c., which, in ten sections, describes the amours of Kr'ishn'a with the cowherdesses, etc.—this poem combining the lyric and the melodramatic character.

(d.) *Didactic Poetry*.—A portion of this class of poetry may be included under the former head; another is contained in the episodes of the *Mahâbhârata*; another forms a portion of the books of fables. The chief special representatives of this class are, 'the three *S'atakas*, or hundred stanzas on love, good and wise conduct, and renunciation of wordly desires, by *Bhartr'ihari*. For the poem *Bhagavadgîtâ*, see *YOGA*.

(e.) *Dramas*.—The plays of the Hindus are not numerous; they were acted only on special occasions, and the

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subject of the plot is with predilection borrowed from the legendary literature of ancient India. Hindu dramatists have little regard for unity of time, place, and action; and except Kâlidâsa, they must be considered of little poetical worth. Besides the reasons to be sought for in the religious, mystical, and metaphysical tendencies of the Hindu mind, a free development of the Hindu drama was impeded probably also by the heavy and artificial canon which weighed upon Hindu dramaturgy, and which, ascribed to sacred sources, gave small scope for poetical imagination. The various kinds of dramatic performances, the number of their acts, the characters of the plays, the conduct of the plot, the sentiments to be represented, even the modes of diction—all were strictly regulated. This elaborate dramatical canon divided all dramatic composition into two great classes—*Rûpaka*, or performance, and *Uparûpaka*, or the minor *Rûpaka*. Neither class contains the species ‘tragedy’—which is incompatible with the Hindu belief in fate. Every drama opens with a prelude in the form of a dialogue between the stage-manager and one of his company, in which the name of the author and of his work, and such prior events as the spectators should know, are brought before the audience. The entrance of a new personage is always announced by a special person. The principal characters of the play are the hero (*nayaka*) and the heroine (*nâyikâ*). The hero has his antagonist in the *pratinâyaka*, or counter-hero; and each of these may have his officers, ministers, and friends. The heroine, on her part, has always a confidential companion, often her foster-sister. Two characters deserve special notice, as peculiar to the Hindu stage—the *Vit'a* and the *Vidûshaka*. The *Vit'a* may be the companion of a man or woman: he is generally on familiar, yet dependent terms with his associate, and though somewhat like the parasite of the Greek comedy, yet not rendered contemptible; if a woman, she is a courtesan. The *Vidûshaka* is the humble companion of a prince or man of rank; he is always lively, sometimes witty, and, according to the definition of his attributes, he is to excite mirth by being ridiculous in person, age, and attire. He is, remarkably, always a Brâhman. Only the hero and the principal personages speak Sanskrit, but women—with rare exceptions—and the inferior personages speak Prâkr'it; the various, higher or inferior, idioms of that language being adapted to their higher or inferior character: see PRÂKR'IT. The oldest known Sanskrit drama is the *Mr'ichchhakat'i*, or ‘the Clay Cart,’ by King S'ûdraka, which, in the opinion of H. H. Wilson, was written B.C. 1st c. For the translation of several of the principal dramas, and an account of others, see H. H. Wilson's *Select Specimens of the Theatre of the Hindus* (2 vols. London 1835).

(f.) *Fables and Narratives*—Fables, as such, occur, and are referred to, as early as in the great epic poems; but the oldest collection of fables is the *Panchatantra* (q.v.); and after it, the *Hitopades'a* (q.v.). A different class are the ghost-stories, composed for amusement. Among narra-

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ñves of the romance class, the most celebrated are, the *Das'akumárácharitra*, or the 'Adventures of the Ten Princes,' by Dañdín, who lived about the middle of the 11th c., ed., with elaborate preface, by H. H. Wilson; *Kadambári*, by Vánabhátta; and the *Vásavadattá*, by Subandhu (ed. by Hall, Calcutta 1859).

(g.) *Chronicles*.—Historical works, in the European sense of the word, do not exist in Sanskrit literature. The same causes which have clouded all Hindu chronology, and even, at recent periods of Hindu history, have transformed historical facts into myths, seem to have rendered the Hindu mind indifferent to the research and the recording of historical truth. The only approach to historical works is found in some chronicles, of which the most renowned is the *Rájatarangi'ni* (q.v.).

4. *Scientific Literature*.—(a.) *Philosophy*: see SÂNKHYA: YOGA: NYÂYA: VAIS'ESHIKA: MÎMÂNSÂ: VEDÂNTA.

(b.) *Grammar*.—That a scientific study of grammar was cultivated at a very early period is testified by the oldest glossator on the Vedas, YÂSKA (q.v.). The oldest extant work is the grammar of Pân'ini (q.v.), criticised by Kâtyâyana (q.v.). Of authors of grammars, not following the technical system of Pân'ini, the principal are, Hemachandra, a Jaina (q.v.) writer, and Vopadeva, who lived probably about six centuries ago, and is especially esteemed in Bengal.

(c.) *Lexicography*.—It consists of glossaries of words and *dhátus*—a term which may be vaguely rendered by 'roots,' or 'radicals,' though it does not imply, to the Hindu grammarian, the idea of a linguistic element—and of commentaries on these glossaries. The oldest known glossary of *Vedic* words—nouns and verbs—is the *Nirukta* (q.v.) of Yâska. Among renowned glossaries of classical words is the *Amarakosha*, by Amarasinha, probably not later than the 3d c. after Christ. (For other works of this class, see Wilson's *Sanskrit English Dictionary*, preface to 1st ed. 1819).

(d.) *Prosody*.—Sanskrit prosody admits three sorts of metre: one governed by the number of syllables, and which is mostly uniform, or monoschematic, in profane poetry, but not so in various passages of the Vedas; the other regulated by feet equivalent to two long syllables or to four short; and the third regulated by the proportion of syllabic instants, without noticing the number of feet. The principal work on *Vedic* as well as profane prosody is the *Chhandah'sâstra* by Pingala.

(e.) *Art of Poetry*.—It is treated in works on dramaturgy, and works on the poetical art in general. The oldest work on the dramatic art is the *Sûtra* of Bharata; a later one is the *Das'arúpa* by Dhananjaya.

(f.) *Works on Music*.—In general, they treat of notes, musical scales, melodies, the art of singing, and musical instruments; and some of them also of the art of dancing and performing. It is probable that the passages in dramas and other poetical works intended for singing were written to suit fixed melodies and not that the

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melodies were composed after the poet had performed his task.

(g.) *Amatory Art*.—Works treating of this art purport to explain and to classify all that relates to love: the chief is the *Kâma-Sûtra* of Vâtsyâyana.

(h.) *Astronomy and Arithmetic*.—The calendars connected with the Vedas are the earliest evidence of Hindu proficiency in astronomy; they presuppose a knowledge of a solar year of 365 days, and their date is assumed by Colebrooke to belong to B.C. 13th c.; while others place them a few centuries later. The scientific works of later Hindu astronomers are professedly based on five ancient systems, or Siddhântas, called the Paulis'a-, Romaka-, Vâs'isht'ha-, Saura-, and Paitâmaha-Siddhânta; and the earliest renowned author among these astronomers is Aryabhat't'a, who, according to Colebrooke's calculation, lived not later than the 5th c. after Christ. From the quotations by Brahmagupta, it appears that Aryabhatta 'affirmed a diurnal revolution of the earth on its axis, that he possessed the true theory of the causes of lunar and solar eclipses, and that he noticed the motion of the solstitial and equinoctial points, but restricted it to a regular oscillation, of which he assigned the limit and the period.' See, for further detail, Colebrooke's *Algebra*, etc. (Lond. 1817. p. 38). Several other ancient writers produced astronomical works of much celebrity. That Hindu astronomy is largely indebted for its progress to the kindred sciences of western nations, may be inferred from the occurrence in Sanskrit of terms of Arabic and Greek origin. Thus, the terms *horâ*, *dreshkân'a*, *liptâ*, *kendra*, etc., are easily traced to the Greek *hôra*, *dekanos*, *lepta*, *kentron*, etc.

(i.) *Medicine*.—The origin of Hindu medicine is referred to the god Brahman, from whom the Ayurveda, or 'the science of long life,' was obtained by Daksha, who communicated it in his turn to the As'wins. Some time after this, mankind, in consequence of their wickedness, becoming afflicted with numerous diseases, the Munis, or saints, met in the Himalaya Mountains to search for a remedy. A long list of these saints is given by *Charaka*, one of the greatest medical writers, interesting as containing several names known in Hindu history, which thus may be probably connected with the early study of Hindu medicine. The two greatest medical authorities whose works are extant are *Charaka* and *Sus'ruta* (q.v.).—See works on Hindu medicine by Wise (1860–67); articles by Haas in the *Ztschr. d. Deustch. Morgeul. Ges.* 1876–7.

(j.) *Architecture*.—Treatises on architecture, sculpture, etc., are collectively called *Sîlpas'âstra*. There appear to have been 32, or, according to some, 64 standard treatises on these arts; but only a few are probably extant. The most important is the *Mânasâra*, in 58 chapters, each treating of a particular topic.—See Râm Râz, *Essay* (1834).

For a more copious supply of titles of books on the subjects mentioned, see Gildemeister, *Bibliotheca Sanscrita* (Bonn 1847), Weber's *History of Indian Literature*, ed. by

## SANTA ANNA

Mann & Zachariah (1878), and the printed catalogues of the Library of the Indian Office, of the Sanskrit MSS. of the Bodleian Library at Oxford, and of the Sanskrit MSS. of the Royal Library at Berlin.

SAN'TA AN'NA, Don ANTONIO LOPEZ DE: long prominent in Mexican politics, and at one time president of the republic: 1798, Feb. 21—1876; b. Jalapa. While a youth, he entered the Spanish army, and became lieut.-col. 1821. When Mexico determined to throw off the Spanish yoke, S. A. greatly distinguished himself at the head of the Mexican troops. The Spanish royalists were expelled from Vera Cruz, and he was elected gov. of the city and province. Iturbide had established an imperial rule over Mexico (q.v.), but his tyranny having worked his downfall, S. A. proclaimed, 1822, a Mexican republic, which was recognized by every foreign state except Spain. He was incessantly engaged in quelling the civil wars kindled by the aristocratic and democratic factions. In 1829 he engaged and put to flight a division of Spanish troops which invaded Mexico by way of Tampico, with the view of again bringing Mexico under Spanish rule. The separation of Texas (q.v.) from the Mexican union was vigorously but unavailingly opposed by S. A. In 1837, differences arose with France, and a division of French troops landed at Vera Cruz. They were gallantly engaged by S. A., who drove a portion of them into the sea at the point of the bayonet. In this action he received a bullet in the leg, which rendered amputation necessary. In 1847, war having been declared by Mexico against the United States, S. A. took command of the Mexican forces, and offered ineffectual resistance to the troops of Generals Scott and Taylor, who stormed and took the City of Mexico and ended the war. S. A. then retired from Mexico, till his recall 1853. During 30 years he had disputed the direction of affairs with Bustamente, Herrera, Cevallos, and other chiefs of parties; being at one time dictator, and at another disgraced and an exile. In 1853, Mexico, torn by civil dissensions and falling into anarchy, recalled S. A. He declared himself pres. for life; civil war was the immediate result; and 1855 he was driven from the country. During the govt. of Juarez, 1858-63, S. A. was looked to as their chief and future ruler by an influential party. On the establishment of a hereditary monarchy under Maximilian of Austria as emperor, S. A. returned to Mexico, having first signed an act of adhesion to the empire; but soon began to intrigue for his own return to power, issuing addresses to the people as emperor; and was ordered to leave the country. After a residence in the United States, S. A. planned an expedition against Juarez; but ere a landing at Vera Cruz had been effected, S. A., with his sec., was taken prisoner, and was condemned to death, but pardoned by Juarez, on condition of his leaving Mexico. He afterward resided on Staten Island, N. Y., where he spent his time cock-fighting and playing at three card monté. On the death of Juarez 1875, he returned to Mexico, and died there. He was regarded by his country-

## SANTA ANNA—SANTA CRUZ.

men as their ablest general, and he was more successful than any other Mexican ruler in quelling the miserable civil wars, though he showed unjustifiable cruelty. He was also accused of being greedy of wealth, and unscrupulous in obtaining it.

SANTA ANNA, *sán'tá án'ná*, or SANTA ANA, *á'ná*: town of Central America, state of San Salvador, 32 m. n.w. by w. from the town of San Salvador. Pop. (1901) 48,120.

SANTA BARBARA, *sán'tá bár'ba-ra*: city, cap. of Santa Barbara co., Cal.; on the Pacific Ocean and on the Southern Pacific railroad; 362 m. s.e. of San Francisco. It is in a rich agricultural, stock-raising, wool, and fruit-growing region; and, by reason of its delightful climate (average temperature 13 years, 55°–71°, average rainfall 16 years, 16–17 in.) and the extension of the railroad to it 1887, has become a popular winter and health resort. It has valuable hot springs; water, gas, and electric light plants; Santa Barbara and Franciscan colleges, St. Vincent's Institute, and circulating library; 2 national banks (cap. \$200,000) and 1 state bank (cap. \$50,000); and 2 daily and 3 weekly periodicals.—S. was settled 1782; had its first mission (Rom. Cath.) erected 1786; suffered from an earthquake, which destroyed the mission 1812; present mission rebuilt 1815. The city was captured by Frémont 1846.—Pop. (1880) 3,460; (1890) 5,849; (1900) 6,587.

SANTA CATHARINA, *sán'tá ká'tá-ré'ná*: province in s.e. Brazil, s. of São Paulo and bordered by the Atlantic Ocean; 27,436. sq. m.; known as the ‘paradise of Brazil.’ There are numerous mountains, but the soil is very productive, the climate is mild, and the scenery is noted for its beauty. Sugar, coffee, and rice are largely produced, and there are considerable deposits of bituminous coal. Several German colonies have been formed and are quite prosperous. The island of Santa Catharina, about 30 m. long and 8 m. wide, is well fortified and forms a bay in which large ships find safe harbor. There are also several smaller islands along the coast. Pop. about 236,346.

SAN'TA CLAUS: see NICOLAS, SAINT.

SANTA CRUZ, *sán'tá króss*: city, cap. of Santa Cruz co., Cal.; on Monterey Bay, and on the Southern Pacific railroad; 80 m. s.e. of San Francisco. It is in an agricultural, stock-raising, dairying, and fruit and vine-growing region; manufactures flour, lumber, leather, paper, powder, lime, and foundry products; and has valuable deposits of bituminous rock. There are a college and seminary, 6 churches, city-hall, public hall, graded public and parochial schools, orphan asylum, 3 state banks (cap. \$135,000), 1 saving and loan assoc. (cap. \$20,000); and 2 daily and 2 weekly periodicals. Pop., permanent (1880), 3,898; (1890) 5,594; (1900) 5,659.

SANTA CRUZ, or STE. CROIX: island of the Virgin Group: see VIRGIN ISLANDS.

## SANTA CRUZ DE LA PALMA—SANTA FÉ

SANTA CRUZ DE LA PALMA, *dū lā pál'má*: town, cap. of Palma, one of the Canary Islands (q.v.); on the e. coast of Palma, on a spacious bay 7 to 10 fathoms deep. There is manufacture of silks and hosiery. Pop. about 5,000.

SANTA CRUZ DE SANTIAGO, *sán'tá krōss dā sán-tē-d'go* (in Teneriffe, *tēn'é-rif*): city, cap. of the Canary Islands (q.v.), and chief seaport of the group; on the n.e. side of the island of Teneriffe. Its port, the safest in Canaria, has been greatly extended and improved by two moles, with a united length about 5,400 ft., which inclose a large space affording excellent anchorage in two to nine fathoms. The streets are broad, the houses whitewashed and flat-roofed, and several of the public buildings striking in appearance. The town is defended by several forts and redoubts. Formerly, large quantities of wine of excellent quality were grown in Teneriffe, and shipped for export at S. C.; now the principal export from this and the other islands is cochineal. Coal from England, with manufactured goods, hardware, and furniture are imported. Of imports at S. C., more than a third come from England, and the annual imports amount to about \$800,000. Pop. 13,228.

SANTA FÉ, *sán'tá fā*: city, cap. of Santa Fé co., and of the terr. of N. M.; on Santa Fé creek and on the Atchison Topeka and Santa Fé, and the Santa Fé Southern railroads; 20 m. e. of the Rio Grande del Norte, 430 m. s. of Denver; altitude 7,300 ft. It is claimed by many to be the oldest city in the United States (see ST. AUGUSTINE, Fla.). When the Spaniard, Cabeza de Baca, penetrated the valley of the Rio Grande to the site of the present city 1538, he found it occupied by an Indian pueblo or village of 15,000 people. The dwellings were constructed after the manner of the earliest Aztec civilization, and many of them still remain. The Spaniards conquered the Indians, and after driving the last one from the pueblo, established a govt. of their own about 1550. The first Spanish gov. built a palace on the s. side of the Plaza Juan de Otermine, which has ever since been used by Spanish, Mexican, and American govs. The Spaniards also, soon after the conquest, erected the church of San Miguel (rebuilt 1710), and about 1600 that of Our Lady of Guadalupe. In 1680 the Indians recaptured the place, drove all Spaniards out, destroyed churches, buildings, relics, and archives, and closed up the gold mines that the Spaniards had opened. In 1694 the Spaniards again conquered the Indians, and began rebuilding churches and public buildings. The city was governed by Spanish and Mexican officers till 1846. Aug. 18, when it was occupied by U. S. troops under Gen. Stephen W. Kearny (q.v.). It is now (1891) in a mining, agricultural, and stock-raising region; is supplied with water from the mountains by means of four reservoirs near the famous Aztec springs; has gas and electric light plants, and gold, silver, copper, lead, zinc, and bituminous and anthracite coal in its vicinity; is the seat of a Rom. Cath abp.; and has 2 national banks.

## SANTA FE—SANTALIN.

(cap. \$150,000), and 1 daily and 4 weekly periodicals. The most notable buildings are the old palace, now used by the terr. govt.; the churches of San Miguel and Guadeloupe; remains of Fort Marcy (built 1846); Rom. Cath. cathedral (cost \$400,000); terr. capitol (\$200,000); terr. penitentiary (\$150,000); Ramona School for Indian girls (\$65,000); Univ. of N. M. (Congl.), opened 1881, which had 1887-8 10 instructors, 185 students, \$50,000 in grounds and buildings, and \$25,000 in benefactions; Santa Fé Acad. (Presb.); Presb. Acad. (1881); St. Michael's College (Rom. Cath.) 1859, 12 instructors and 175 students (1890); and St. Catherine's Boarding and Industrial School for Indian Boys (Rom. Cath.). The Rom. Cath. Church maintains also several parochial schools, St. Vincent's Sanitarium for people in quest of health, St. Vincent's Hospital for men and women, and St. Vincent's Orphan Asylum for girls only.—S. has large railroad interests and a few manufactures, and its Indians are engaged chiefly in pottery. Pop. (1870) 4,765; (1880) 6,635; (1890) 6,118; (1900) 5,623.

SANTA FÉ, *sân'tâ fâ*: town in the Argentine Republic on the right bank of the Salado, branch of the Paraná, 250 m. n.-w.-by-n. from Buenos Ayres. Pop. (1901) 25,500.

SAN'TA FÉ DE BOGOTA': see BOGOTA.

SANTALACEÆ, *sân-tâ-lâ'sê-ê*: natural order of exogenous plants, mostly trees and shrubs. The leaves are undivided, sometimes minute. The perianth is superior, 4-5-cleft. The stamens are 4 or 5, opposite the segments of the perianth, and inserted into their bases. The ovary is 1-celled, with 1-4 ovules. The fruit is 1-seeded, nut-like, or drupaceous.—There are about 110 known species, natives of various parts of the world, the European species being obscure weeds, while the trees of the order occur chiefly in the E. Indies, New Holland, and the South Sea Islands. In N. America, besides some shrubs on the s. Alleghanies, chiefly the Oil Nut, or Buffalo Nut (*Pyrularia oleifera*), there is a low herb, common at the north, *Comandra umbellata*, 6-10 in. high, the 5 stamens connected with the white calyx-lobes by tufts of hairs; hence the name [*komē*, hair, *andros*, of man]. SANDAL-WOOD (q.v.) is the product of plants of this order. The leaves of *Osyris Nepalensis* are used for tea. Some species are used in medicine in their native countries. *Fusanus acuminatus* is the Quandang Nut of New Holland: its taste and qualities resemble those of Sweet Almonds, as do also those of the seed of the *Cervantesia tomentosa* of Peru. *Pyrularia oleifera*, the Buffalo Tree or Oil Nut, has a large seed, from which, in the southern states, oil is obtained.

SANTALIN, *sân'ta-lîn*, or SANTALIC ACID, *sân-tâl'ik*: the coloring matter of *Pterocarpus santalinus*, or red sandal-wood (see SANDAL-WOOD) is readily obtained by digesting the rasped wood in alcohol, and then precipitating the santalin by free addition of water. It is used in India in dyeing silk and cotton. It is because of the santalin in it that red sandal-wood is retained in the *Pharmacopœia* as a coloring agent for tinctures, etc.

## SANTALUM—SANTA MAURA.

SANTALUM, n. *sán'ta-lúm*: sandal-wood; typical genus of *Santalaceæ*.

SANTA MARGHERITA DI BELICE, *már-gá-ré-tá bá'lé-chá*: city of Sicily, province of Girgenti. From the lands belonging to it, grain, wine, and oil are exported. Woven goods and hats are manufactured for export. Pop. 7,500.

SANTA MARGHERITA DI RAPALLO, *dé rá-pál'lo*: or S. M. LIGURE, *lē-gó'rū*: pleasant town, province of Genoa, Italy; on the sea-coast about 3 m. from Rapallo. The Genoese coral fishery is carried on principally by feluccas fitted out here, and manned by the seafaring population. Pop. 4,000.

SANTA MARIA, *sán'tá má-ré'á*: city, in province of Cadiz, Spain; on the bay of Cadiz where it receives the Guadalete river. 6 m. from the city of Cadiz. There are manufactures of brandy, liqueurs, soap, hats, leather, and wax, and an immense export trade in wine. It contains many handsome buildings, and is famous for the annual bull-fights in May. Pop. about 22,000.

SANTA MARIA DI CAPUA-VETERE, *má-ré'á dé ká'pó-á vā-tā'rā*: city of s. Italy, province of Caserta. It is not handsome but new, and its pop. is increasing. The neighboring soil is very fertile, and produces abundant grain, fruits, oil, and excellent wines. Its manufactures consist of cloth and other woven materials and hats. Pop. about 18,500.

SANTA MARTA, *már'tá*: town of the U. S. of Colombia, cap. of a province; on a bay of the Caribbean Sea, 400 m. e.n.e. from Panama. There is a good harbor, defended by a castle and several batteries. Pop. 8,000.

SANTA MAURA, *mow'rá*, or LEUCA'DIA (anc. also *Leucas*, so called from its white cliffs): one of the Ionian Islands, off the w. coast of the anc. Greek province of Acarnania, from which it is now separated by a passage about a mile wide, though according to tradition it was in early times connected with the mainland by an isthmus. The canal across the isthmus, which converted the peninsula into an island, is said to have been cut by the Corinthians. S. M. is about 22 m. long, and 6 to 9 m. broad; 180 sq. m. Its surface is very uneven. It is traversed by a range of hills from n. to s., which end at the s. extremity in the high white cliffs, 2,000 ft. high, called by the Italian sailors of the Levant Cape Ducato (corruption of *Leucates*), but better known under the name 'Sappho's Leap.'—Pop. 20,147.

## SANTANDER—SANTEE.

**SANTANDER**, *sán-tán-dár'*: important and thriving seaport of Spain, in the modern province of S.; on a magnificent bay, inlet of the Bay of Biscay, about equally distant from Oviedo, on the w., and San Sebastian on the e. The bay is two to three m. wide, and about four m. long, and is accessible to the largest vessels at all tides. The situation of the town, on a headland protected by a hill, is picturesque; among its older edifices few are either interesting or important. Of its former convents, one now serves as a theatre; another as a cigar-factory, giving employment to about 1,000 people. Numerous new houses, and handsome warehouses, and commercial establishments of various kinds have been erected in recent years. The half of the province of S. may be said to be impregnated with iron, copper, zinc, and other ores; though, hitherto, the timidity of native capitalists has prevented extensive mining. In one year, 12,625 tons of iron and copper ores, with a quantity of quicksilver and cobalt, were shipped from the port of S. to Great Britain alone. Wheat is an important element in the trade of S. The annual exports amount to about \$7,500,000, nearly all of wheat and flour. The imports—chiefly sugar from Cuba; textile fabrics from England, France, Belgium, and Germany; and salted cod-fish from Norway—amount to about \$9,000,000. A railway runs s. from S. to Venta de Banos, on the North of Spain railway; and in the middle portion of it, from Barcena to Reynosa, 21 m., there are 22 tunnels. Pop. 56,000.—The province of S. has 2,111 sq. m.: pop. (1877) 235,299; (1887) 242,843; (1900) 276,003.

**SANTAREM**, *san-tá-reng*: interesting old town and river-port of Portugal, on the right bank of the Tagus, 46 m. n.e. of Lisbon by railway. It carries on active trade in the products of its fertile vicinity with Lisbon, with which there is steam-communication by river also. Pop. about 8,000.

**SANTA ROSA**, *sán'tá ró'zá*: city, cap. of Sonoma co., Cal.; on Santa Rosa creek, and on the San Francisco and Northern Pacific and the Central Pacific railroads; 60 m. n. of San Francisco. It is in the richest wine-growing region in the state, the co. having the largest vineyard under one management in the world. The chief industries are the manufacture of wine, flour, and leather; agriculture and stock-raising also are largely carried on. The city contains city and co. buildings, 8 churches, a national bank, Christian College, high and graded public schools, water-works, gas and electric light plants, and 2 daily and 1 weekly periodicals. Pop. (1880) 3,616; (1890) 5,220; (1900) 6,673.

**SANTEE**, *sán-té'*, RIVER: in S. C.; rising in the Blue Ridge, in N. C., by two principal tributaries, the Congaree and Wateree, and flowing s.e. to the Atlantic Ocean; lat.  $33^{\circ} 6'$ . It is navigable 150 m. to Camden, and is bordered, in its lower course, by rice-swamps and pitch-pine forests.

## SANTERRE—SANTIAGO DE COMPOSTELLA.

SANTERRE, *sōng-tär'*, ANTOINE JOSEPH: French revolutionist, who for some time exercised an influence quite disproportioned to his feeble abilities: 1752, Mar. 16—1809, Feb. 6; b. Paris. He was a brewer in the Faubourg Saint-Antoine, and gained influence in his district by his wealth, and by honesty and generosity toward his workmen. He received high military commands, in which he showed utter incapacity. S. was a loud revolutionary talker, but had not the cruel fierceness sometimes ascribed to him.

SAN THIAGO, *sān tē-ā'gō*, or SANTIAGO, *sān-tē-ā'gō*: largest of the Cape Verd Islands (q.v.).

SANTIA'GO DE CHILI, *dā chē'lē*, commonly SANTIAGO: city, cap. of the republic of Chili and of the province of S.; an archbishop's see; at the w. base of the Andes, 1,800 ft. above sea-level, 90 m. e.s.e. of Valparaiso. It was founded 1541 by Pedro de Valdivia, but has only recently acquired importance. Its climate is delightful; the plain on which it stands is extensive, and fertile in vines, figs, melons, and other fruits; and the scenery, toward the range of the Andes, is grand. The valley or plain of S. is sprinkled with tasteful villas and well-cultivated farms. The city is arranged in squares, and the houses are generally low, built around a court or garden intended as a refuge during the frequent earthquakes. But of late years it has become the fashion, in spite of earthquakes, to build costly houses of two, three, and even four stories, with façade toward the street. The Alameda, shaded with poplars, and coursed by two streams, is a pleasant promenade. The Mint, a portion of which serves as one of the president's palaces, and as offices for the ministers, is the handsomest of the many beautiful public buildings. The univ. comprises the five faculties of philosophy, mathematics and physical sciences, medicine, law, and theology. There are important educational institutions (including a normal school), noble libraries, and a museum. Besides the official journal there are four daily papers. On the w. side of the great square, which is adorned with a fine fountain, is the cathedral. 1863, Dec. 8, one of the churches, La Compania, was destroyed by fire during service, and 2,000 out of the 3,000 of the congregation—mostly women—met a dreadful death. Gold, silver, and lead are exported; imports are chiefly manufactured goods, wines, and spirits. The chief trade is with Valparaiso by the Valparaiso and Santiago railway, opened 1863. Pop. (1890) 250,000; (1895) 256,413.

SANTIA'GO DE COMPOSTELLA, *dā kōm-pōs-tē'lā*: important and famous city in n.w. Spain, former cap. of Galicia, and, from the number of pilgrims by whom it was annually visited, 'the Mecca of Spain;' 32 m. s.-by-w. from Coruña. It is extremely picturesque in appearance, from its hill-girt situation on an uneven site. The cathedral, on the site of a former edifice, was founded 1082, and its buildings, comprising a cloister, abp.'s palace, etc., cover more than three acres. Pop. 23,000.

## SANTIAGO DE CUBA—SANTONIN.

SANTIAGO (or ST. JAGO) DE CUBA, *sán-tē-á-gó dā kō'bá*: city and seaport, formerly cap. of the island of Cuba, and now the chief town of the e. dept. of the island; on a bay on the s. coast, at the mouth of the stream S. de C. It is hemmed in by mountains, and is reputed the most unhealthful place in the island. Its harbor is deep, well protected, and fortified. It communicates by railway and telegraph with the other towns of the island. As a seat of commerce, it takes rank after Havana and Matanzas. It is delightfully situated. The Spanish-American war (q.v.) brought S. into prominence owing to the military and naval engagements which occurred in its vicinity 1898, June 14 to July 17, and ended in the surrender of the city on the later date. The articles of capitulation included the return to Spain of all prisoners of war, and the surrender of the province of Santiago and all Spanish forces therein.

It was at the mouth of S. harbor that Hobson (q.v.) sank the *Merrimac*, June 3, and that Admiral Cervera, trying to escape with the Spanish fleet, was attacked by an American squadron, under the command of Admiral Sampson, and totally destroyed on July 3. See SPANISH-AMERICAN WAR; UNITED STATES. On July 20 the American flag was raised over the city, and Gen. Leonard Wood was appointed military governor. Pop. (1887) 71,307.

SANTILLA'NA, Marquis DE: see MENDOZA, IÑIGO LOPEZ DE.

SANTLEY, *sánt'lé*, CHARLES: singer: b. Liverpool, England, 1834. Feb. 28. He received a musical education in England, and afterward studied in Italy; returned to England 1857, and appeared in London in *The Creation*; became an opera-singer 1859, and soon ranked as the leading baritone singer of the day. He has appeared in many of the large cities of Europe, and has visited America.

SAN'TO DOMIN'GO: see SAN DOMINGO: DOMINICAN REPUBLIC: HAYTI.

SANTON, n. *sán'tōn*, or SAN'TOON, n. -tōn [Sp. *santon*, a hypocrite—from L. *sanctus*, holy]: a Turkish dervise or priest, esteemed by the people as a saint; a Mohammedan monk.

SANTONIN, or SANTONINE, n. *sán'tō-nín* [Gr. *santon'-žín*, wormwood, found in the country of the *Santonés*, in anc Gaul], ( $C_{15}H_{18}O_3$ ): vegetable principle possessing slightly acid properties, obtained from the seeds and flower-heads of several species of *Artemisia*. The British Pharmacopœia gives as its source *Santonica*, ‘the unexpanded flower-heads of an undetermined species of artemisia,’ imported from Russia: it is the *Southernwood* or *Levant Wormseed*. S. is one of the most efficacious anthelmintics or vermifuges, the most obstinate cases of ascarides and lumbrici almost always yielding to its prolonged use. Pure S. may be given in powder combined with scam-

## SANTONINOXYME—SAO FRANCISCO.

mony or rhubarb, the dose being from half a grain to two grains, according to the age of the child. The French prescribe it in lozenges made with white sugar and mucilage; these usually act satisfactorily. Küchenmeister, one of the highest authorities on intestinal worms, prefers santonate of soda, which he obtains by digesting an alcoholic solution of S. with carbonate of soda, evaporating, and crystallizing. The dose is two to eight grains mixed with sugar. Two very peculiar symptoms occur after the administration of S. The urine often acquires a reddish tint, which may give rise to an unfounded suspicion of the presence of blood in that fluid; and under its influence, vision becomes remarkably affected for a few hours, every object appearing either yellow or green to the patient. No satisfactory explanation of the latter phenomenon has yet been given.

**SANTONINOXYME**, *sān-tō-nīn-ōks'īm* [Eng. *Santonin* (q.v.) and *Hydroxylamin* (q.v.)]: substance produced by action of chlorhydrate of hydroxylamin on santonin. It is a white crystalline substance, soluble in alcohol and ether, but dissolving in water, whether acid or alkaline, only with difficulty. It is reported to have the same action in the intestines as santonin, but owing to its less solubility it is far less poisonous. As an anthelmintic, S. may be administered in doses thrice as large as the standard dose of santonin.

**SANTOOISM**, n. *sān-tō-īzm*: the chief religion of Japan.

**SANTORIN'** (island): see **TERA**.

**SANTOS**, *sān'tōs*: one of the chief ports of the province of São Paulo (q.v.) in Brazil, 34 m. s.s.e. of the city of São Paulo, of which it is the port. It is on the n. side of the island of Engua Guaçu, and commands a fine bay of São Paulo, of which it is the port. It commands a fine bay. Sugar, coffee and other products are exported. Pop. (1900) about 20,000.

**SANTOS-DUMONT**, ALBERTO: aeronaut; b. Brazil about 1874. He was educated in France; settled in Paris and devoted much of a large fortune to the invention of a practical air ship. In 1899, Nov., he made his first successful ascent in a dirigible air ship; in 1901, Oct. 19, in machine No. 6 won a prize of 100,000 francs; in 1902, Feb., tried to cross the Mediterranean, but failed through an accident to his ship; later brought this to the United States.

**SAN VICEN'TI**: see **SAN SALVADOR**.

**SÃO FRANCISCO**, *sowng frān-sē'skō*: large river of Brazil, rising as the Paraopeba, in the province of Minas Geraes, lat. about  $20^{\circ} 40'$  s., long.  $43^{\circ} 25'$  w. It flows n., n.e., and e.; and its lower course separates the provinces Bahia and Sergipe from Pernambuco and Alagoas. Its first considerable affluent is Rio das Velhas, which joins it from the right, lat.  $17^{\circ} 45'$  s. Above the junction of the Velhas, at Pirapora, where the river is 1,782 ft. broad, and 1,700 ft. above sea-level, there is a fall of 17 ft. From the mouth of the Velhas (1,666 ft. above

## SÃO LUIS DE MARANHÃO—SÃO PAULO.

sea-level) to the falls of Paulo Affonzo, the river is navigable 920 m.; and from these falls to the mouth of the river, about 140 m., it is navigable for larger vessels and steamers. Entire length 1,652 m.; breadth at mouth is 3,486 feet.

SÃO LUÍS' DE MARANHÃO': see MARANHÃO.

SAÔNE, *sôñ*: river of France, affluent of the Rhone (q.v.), rising in the dept. of Vosges, at Vioménil, in the Faucelles Mountains, 1,476 ft. above sea-level, and flowing s. past Gray, Châlons, and Mâcon, to its confluence with the Rhone at Lyon. Entire length 312 m., of which 170 m. are navigable.

SAÔNE, HAUTE, *ôt sôñ*: department in n.e. France, bounded n. by the dept. of Vosges, e. by that of Haut-Rhin; 2,050 sq. m. About one-half of the entire area is in cultivable land, and more than a fourth part, comprising the n. and n.e. districts, is covered with forest-clad mountains. In the s. and s.w. are fertile plains, bounded by hills covered with vines or timber. The climate of this rich champaign district, with its bulwark of mountains against the n. and n.e. winds, is remarkably mild and healthful. Sheep, including some flocks of the merino breed, and cattle are reared in large numbers. Fruits are largely cultivated; and a few years ago 6,600,000 gallons of wine and 220,000 gallons of brandy were made annually. The arrondissements are Gray, Lure, and Vesoul, and Vesoul is the capital.—Pop. of dept. (1901) 266,605.

SAÔNE-ET-LOIRE, *sôñ-â-lwâr'*: large department in e.-central France, bounded e. by the dept. of Jura and the river Saône, w. by the dept. of Nievre and the river Loire; 3,300 sq. m. The country consists mostly of vast fertile plains, separated by rich vine-clad hills. The fertility is greatest in the vicinity of the two main streams. Horses of small but vigorous breed are reared; the excellent pasturage supports numerous herds. The wines, of which the average quantity made annually about 1883 was nearly 22,000,000 gallons, are well known as *vins de Mâcon*. Agriculture, iron-mining, and manufactures of cotton fabrics, leather, pottery, firearms, etc., are actively carried on: more than one half the pop. depend on agriculture.—The dept. was formed 1790 out of four districts of the anc. province of Burgundy—Maconnais, Charollais, Chalonnais, and L'Autunois. It now forms five arrondissements, of which Mâcon is capital.—Pop. of dept. (1901) 620,360.

SÃO PAULO, *sowng pow'lô*: maritime province of s. Brazil, bounded n. by the province of Minas Geraes; 112,940 sq. m. Its coast-line—part of which in the n.e. is high and rocky, though the rest is low—is about 400 m. long. Sugar, coffee, rice, millet, and tobacco are staple crops; horses, cattle, and swine are reared for export; and among minerals are the precious metals and gems. There are several commodious harbors. Cap., São Paulo.—Pop. province (1888) 1,386,242; (1890) 1,384,753.

## SAO PAULO—SAP.

SAO PAU'LO: city of Brazil, cap. of the state of S. P.; on an uneven elevation between two small streams, tributaries of the Tiete; 220 m.w.s.w. of Rio de Janeiro. There is an Acad. of Laws, attended by about 500 students. The general appearance of the town is picturesque, and the vicinity and suburbs are beautiful. The town was founded by the Jesuits before 1560. became a city 1711. and in recent years, as the centre of the state railway system, it has grown largely.—Pop. (1890) 64,934.

SÃO PAULO DE LOANDA, *sowng pow'lō dā lō-ān'dā*, or LOAN'DA: city on the Bay of Loanda, cap. of the Portuguese settlements in w. Africa; lat. 8° 48' s., long. 13° 7' e. It has a harbor formerly large and fine, but now rapidly filling up; and is defended by three poorly armed forts. A long line of white sand, known as Loanda Island, lies in front of the bay. A large part of the houses are on the low land along the shore, but the govt. buildings, hospital, and many of the finer structures, are on elevated ground. Buildings belonging to Europeans are largely of stone, one or two stories high. Many of the streets were formerly paved, but have been neglected, and are covered with sand. The water-supply is deficient. The city was formerly a centre of the slave-trade with Brazil. It now has some export-trade in ivory, palm oil, rubber, and coffee. It is the see of a bishop, but the churches and monasteries built two centuries ago are in ruins. The exactions of the home govt. leave no means for developing the local interests, and the city is declining. It was founded by the Portuguese 1578, but was under Dutch govt. 1641-48. A proportion of the whites are Portuguese convicts, or their families. Pop. (1890) about 15,000, of whom about 3,000 are white.

SÃO PE'DRO DO RI'O GRAN'DE: see RIO GRANDE DO SUL.

SAOUA'RI: see CARYOCAR.

SAP, n. *săp* [Low Ger. *sapp*, juice, wet : Ger. *saft*, juice] : the vital juice or circulating fluid of plants (see below). SAP'LESS, a.- *lēs*, destitute of sap. SAP'LING, n. -*ling*, a young tree. SAP'PY, a. -*pī*, full of sap ; juicy. SAP'INESS, n. -*pī-nēs*, state or quality of being full of sap : juiciness. SAP-GREEN, a pigment obtained by evaporating to dryness the juice of the berries of the buckthorn mixed with lime. SAP'SAGO, a green-colored cheese from Switzerland of an agreeable flavor. SAP-TUBE, the tube conveying the sap in trees. SAP-WOOD, the alburnum or external part of the wood next the bark.

SAP is the fluid which circulates in plants ; indispensable to vegetable life as the blood to animal life. The root-hairs of the plant absorb from the soil the plant's nutriment, nitrogen compounds in watery solution. This crude S., or ascending S., permeates the stem and the branches till it reaches the leaves ; in the leaves it is decomposed chemically by the action of light, oxygen being liberated, and carbon dioxide assimilated : this elaborated S. descends the branches and the stem, leaving along its route deposits which constitute the growth of the plant, of its fruit, etc.. see ENDOSMOSE : CIRCULATION OF SAP : LATEX.

## SAP.

The greatest number and variety of experiments on the phenomena of sap, some with surprising results, were made by the late Pres. William S. Clark, of Amherst, Mass., and were detailed in annual reports of the Mass. Board of Agriculture, 1873-4 and 1874-5. A large black birch, April 30, indicated a pressure within the root equal to a column of water 85.80 ft high; in the trunk, May 4, 84.77—or nearly twice that found by the Rev. Stephen Hales in his noted experiment on a grape-vine, 1820. Repeated trials at two different heights on the trunk gave differences of pressure equal to that of a column of water of the height of one point above the other, as if the tree were a cylinder of water; and this likeness was more strikingly exhibited by the almost instantaneous response in, e.g., the mercurial column of the lower gage when the stop-cock of another gage was turned on the other side of the tree, or even the one at the top of the tree, 60 ft. above the lower. Yet Pres. Clark adduces facts favoring the supposition that sap exists for the most part as a quasi-solid in combination with cellulose, from which, e.g., in the sugar maple, during any cold month it is partly separated by very low temperature, so that, aided by the expansion of ensuing warmth, it flows freely when the tree is tapped. He even considers much of the water absorbed by roots, as in seemingly dry ground, and much of that which is present in every tree (about 50 per cent. of the weight of green wood), as in a 'dry' state—that is, invisible. The old theory of sap was charmingly simple, namely, that it goes up in spring down in autumn; that it travels from cell to cell by osmose, with the help of capillary attraction; and that its force and its equation are simply exhalation necessitating root-absorption; and Herbert Spencer even thought that the swaying of the tree helped circulation, as in animals. The numerous experiments of Pres. Clark disprove all this; and further go to show, not only that a vital force, above all chemical and physical forces, is manifest, but also that different species of trees have surprising peculiarities in the most of the phenomena investigated. To illustrate plant-force, one of his most novel arrangements was a test of the lifting power of growth; it was found that a large variety of squash lifted 4,120 lbs., and, so far as could be judged after an interfering accident, 5,000. As to the beginning of growth in spring, facts offer good reason to believe that sap begins to move first in buds, and the first supply of water is from the sap-wood, the same source that produces growth in some kinds of cut and corded wood, and even in a slab (figured in the report) where bulging new wood bordered the edges. On the whole, the experiments (spoken of by Agassiz as a revelation) are against the former view that naturally tried to liken the circulation as well as respiration, etc., of plants, to that of animals, without resorting to investigation.

SAP, v. *săp* [S. *saper*, to undermine: It. *zappare*, to dig; *zappa*, a spade: mid. L. *sapa*, a hoe]: to subvert by digging or wearing away; to mine or undermine; to proceed by

## SAP—SAPAN WOOD.

mining ; to proceed secretly ; to undermine, as one's reputation : N. a trench or ditch employed in military operation (see below). SAP'PING, n. the art of approaching a fortress, when within range of fire, by excavating trenches in such a manner as to protect the men from fire. SAP'PING, imp. SAPPED, pp. *săpt*. SAPPERS, n. plu. *săp'pérz*, or SAPPERS AND MINERS, in *mil.*, those specially trained men in an army who are employed in making saps, in executing field-works, and building fortifications ; in the Brit. army the term is applied to private soldiers in the corps of royal engineers, many of whom are excellent surveyors and draughtsmen. FLYING-SAP, a sap made under cover of night, or during a slackness of fire, by placing gabions simultaneously in a line, each man placing two gabions in front of him and rapidly filling them with earth. FULL SAP, a trench commenced in the usual way under the cover of a large gabion. SAP-FAGOT, a fascine placed lengthways, with a picket driven through it. SAP-ROLLERS, two gabions placed one inside the other, used as cover for the men making the sap, and pushed before them by a pole.

SAP, in Military Engineering, is a narrow ditch or trench, by which approach is made from the foremost parallel toward the glacis or covert-way of a besieged fortress. The sap is usually made by four sappers, the leading man of whom rolls a large gabion before him, and excavates as he progresses, filling smaller gabions with the earth dug out, and erecting them on one or both sides to form a parapet. The other sappers widen and deepen the sap, throwing more earth on to the parapet. A sap is considered to advance in average ground about eight ft. per hour. From the nearness of the enemy's works, running a sap is an extremely dangerous operation. When possible, therefore, it is carried on at night ; in any case, the sappers are relieved at least every hour. When a sap is enlarged to the dimensions of a trench, it bears that name.

SAPAJOU, n. *săp'ă-jō*, or SAPAJO [F.—from Brazilian, *sajuassu*] : name sometimes applied to all that division of S. Amer. monkeys which have a prehensile tail, and sometimes limited to those of them which are of slender form ; e.g., the genera *Ateles* (q.v.), *Cebus* (q.v.) : see also CAPUCHIN MONKEY : SPIDER MONKEY.

SAPAN WOOD, or SAPPAN WOOD, n. *să-păn' wûd* [Sp. *sapan* ; Malay, *sapang*], or BUKKUM WOOD, *bük'-üm* : wood of *Cæsalpinia Sappan* (see CÆSALPINIA), E. Indian tree about 40 ft. high, with twice pinnate leaves, and racemes of yellow flowers. The wood resembles Brazil-wood, and is much used as dye-wood, yielding a good red color, which, however, is not easily fixed. It is a considerable article of export from Singapore and other ports of that region.

## SAPHENA—SAPINDACEÆ.

SAPHENA, n. *săfē'nă* [Gr. *saphēnēs*, clear, manifest]: in *anat.*, a name applied to two conspicuous veins of the lower extremities—the *internal* running along the inner side of the foot, leg, and thigh, and the *external* on the outer border of the foot. SAPHE'NOUS, a. *-nūs*, applied to the superficial vessels and nerves of the thigh and leg.



Capuchin Sapajou (*Cebus capucinus*).

SAPID, a. *săp'īd* [F. *sapide*, having taste or flavor—from L. *sapidus*, savory—from *sapiō*, I taste]: tasteful; palatable; that affects or stimulates the palate. SAP'IDNESS, n. *-nēs*, or SAPIDITY, n. *să-pid'ī-tī*, taste; the quality of affecting the organs of taste.

SAPIENT, a. *să-pi-ēnt* [L. *sapiens* or *sapien'tem*, wise—from *sapiō*, I taste, I have sense or discernment: It. *sapiente*]: wise; sagacious; characterized by wisdom or discernment—almost always used in an ironical sense; would-be wise. SA'PIENTLY, ad. *-lī*. SA'PIENCE, n. *-ēns*, wisdom; knowledge—used in an ironical sense.—SYN. of ‘sapient’: wise; knowing; sage; sagacious; discerning.

SAPIENTIA, n. *să-pi-ēn'shī-a* [L.]: wisdom. *O Sapientia* is an entry in the Anglican calendar under Dec. 16, which has been retained from pre-Reformation times. These two words are the commencement of the first of the series of seven greater antiphons for the Magnificat.

SAPINDACEÆ, *săp-in-dā'sē-ē*: natural order of exogenous plants, consisting of trees and twining shrubs furnished with tendrils, and of a few herbaceous climbers. Their leaves are often marked with lines or pellucid dots. The flowers are in racemes or racemose panicles, hermaphrodite or unisexual. The calyx is 4–5-partite, or consists of 4–5 sepals. The petals are 4–5, occasionally lacking, hypogynous, usually having an appendage in the inside. The stamens are usually 8–10; often inserted into the disk, which is fleshy and sometimes glandular. The ovary is generally 3-celled, the cells containing one or

## SAPLING—SAPONACEOUS.

few ovules. The fruit is fleshy, or *sumaroid*, or capsular. The order contains about 380 known species, natives of warm climates, especially of S America and India; none natives of Europe, though the HORSE-CHESTNUT (q.v.) is now as well known in many parts of Europe as most of its native trees. It abounds in parts of N. America; and there is a probable hybrid, the Red Horse-chestnut (*Aesculus rubicunda*).

The other N. Amer. species of the family include the Bladder-nut, Balloon-vine, the many Buckeyes and Maples. The timber of some species is valuable, particularly of *Pteroxylon utile* and *Hippobroma alatum*, natives of the Cape of Good Hope, the former known there as *Nieshout*, and the latter as *Pardepis*. Some are used in medicine as astringents. Narcotic and poisonous properties are very generally developed—also a saponaceous principle, especially in the genus *Sapindus* (see SOAPBERRY). Yet GUARANA (q.v.) BREAD is made from the seeds of a species of this order; the leaves of another (*Cardiospermum halicacabum*) are used as a boiled vegetable in the Moluccas; and the fruits of some species are excellent food.

**SAPLING, SAPLESS:** see under SAP 1.

**SAPODILLA, n.** *săp'ō-dil'lă* [F. *sapotillier*: Sp. *sapotilla*: Mexican, *zapotl*]: tree and its fine large fruit, native of the W. Indies and S. America; the *Achras sapota*, and other species of *Achras*, a genus of nat. order, *Sapotīcēæ* (q.v.). The fruit is often called S. Plum. The seeds are aperient and diuretic, but an overdose is dangerous. The pulp of the fruit is subacid and sweet, and much esteemed for dessert in the W. Indies. The fruit of *Achras maminosa* is called MARMALADE. The NASEBERRY, also of the W. Indies, belongs to this genus.

**SAPONACEOUS, a.** *săp'ō-nā'*. **Sapodilla** (*Achras sapota*). *shūs* [F. *saponacé*, saponaceous—from L. *sapo* or *sapōnem*, soap: It. *saponaceo*]: soapy; having the qualities of soap; feeling like soap to the touch. **SAPONIFY, v.** *să-pōn'ī-fī* [L. *sapo*, soap; *faciō*, I make]: to convert into soap; to combine to form soap. **SAPONIFYING, imp.** **SAPONIFIED, pp.** *-fid*. **SAPONIFICATION, n.** *-fi-kā'shün*, conversion into soap (see OILS: SOAP-MAKING). **SAPONIN, n.** *săp'ō-nīn*, peculiar substance obtained from various plants (see below). **SAPONULE, n.** *-nūl*,



*Sapindus Saponaria*. (See SAPINDUS.) The leaves and fruits of this species are used as a soap substitute in some parts of the world.



## SAPONIN—SAPPHIC.

an imperfect soap formed by the action of an alkali upon an essential oil.

SAPONIN, *săp'ō-nĭn* ( $C_{35}H_{54}O_{18}$ ): vegetable principle in various plants, e.g., *Soapwort*, *Polygala Senega*, several varieties of *Lychnis*, fruit of the horse-chestnut, etc. It is readily extracted from the root of soapwort by means of boiling alcohol, which, as it cools, deposits the S. as an amorphous sediment. It derives its name from its behavior with water, in which it is soluble in all proportions, yielding an opalescent fluid which froths when shaken, like a solution of soap, if even  $\frac{1}{1000}$  part of S. be present. Its solution, or an infusion of soapwort, is sometimes used instead of a solution of an alkaline soap, for cleansing finer varieties of wool from grease.

SAPOR, n. *să'pōr* [L. *sapor*, taste, relish—*from sapiō*, I taste]: taste; savor; relish; power of affecting palate or taste. SAPOROUS, a. *săp'ō-rūs*, having taste; savory. SAP'OROS'ITY, n. -*ōs'ī-tī*, the quality in a body by which it excites the sensation of taste. SAP'ORIF'IC, a. -*rīf'ik* [L. *faciō*, I make]: giving taste or flavor.

SAPOTACEÆ, *săp'ō-tā'sē-ē*: natural order of exogenous plants, consisting of trees and shrubs, often abounding in milky juice. The leaves are leathery, entire, and without stipules. The flowers are axillary; calyx is regular, persistent, generally with five divisions; corolla monopetalous, hypogynous, deciduous, regular, its segments usually equal in number to those of the calyx, rarely twice or thrice as many. The stamens are inserted on the corolla, fertile ones generally as many as the segments of the calyx, and generally with alternate sterile ones. There is no disk. The ovary is superior, with several cells, each cell with one ovule. The fruit is fleshy; the seeds nut-like, sometimes cohering; the *testa* bony and shining, with a very long, opaque, and softer scar on the inner face.—There are considerably more than 200 known species, natives chiefly of the tropics, and the remainder of sub-tropical countries. One of the most recently discovered species is also already one of the most important, *Isonandra gutta*, which produces GUTTA-PERCHA (q.v.).—The fruits of some are pleasant for eating, e.g., SAPODILLA (q.v.), and other species of the genus *Achras*; the STAR APPLE, and other species of *Chrysophyllum* (q.v.); different species of *Mimusops*; *Imbricaria Malabarica* and *I. maxima*; various species of *Lucuma*, etc. The genus BASSIA (q.v.) contains species valuable for the oils which they yield. The seeds of *Mimusops elengi* also yield oil abundantly.—In Gray's *Field Book of Botany*, the *Brumeliaceæ* is made the Sapodilla family, and includes our *Brumelia*, shrubs and small trees with cherry-like purple or blackish fruit. Va. to Ill., and south.

SAPPAN WOOD: see SAPAN WOOD.

SAPPERS: see under SAP 2.

SAPPHIC, a. *săf'fik*: pertaining to *Sappho*, an anc. Grecian poetess; pertaining to a Greek metre.

## SAPPHIRE—SAPPHO.

SAPPHIRE, n. *säffer* or *fir* [L. *sapphirus*; Gr. *sappheiros*; Heb. *sappir*, a sapphire]: precious stone of great hardness and beauty. SAPPHIRINE, a. *-fer-in*, resembling sapphire: N. mineral resembling the sapphire, and of pale-blue color.—The *Sapphire* is a gem excelled in value by no precious stone except diamond, and regarded as a variety of Corundum (q. v.), highly transparent and brilliant. It is sometimes colorless, and this kind, called *White S.*, is sold sometimes as diamond. It more frequently exhibits exquisite color, generally bright red or beautiful blue; more rarely, gray, white, or green. The red variety is the Oriental Ruby (q. v.) of lapidaries; the blue is that commonly from ancient times called S. It is found crystallized, usually in six-sided prisms, terminated by six-sided pyramids; and occurs sometimes imbedded in gneiss, but more frequently in alluvial soils. It is found at Bilin in Bohemia, and Expailly in Auvergne, but more abundantly in parts of the East. Ceylon is famous for its rubies and its sapphires, the latter the more abundant. They occur with garnets and other minerals, in a stratum of water-worn pebbles firmly imbedded in clay, in which are occasional lumps of granite and gneiss. But they have not yet been sought in their original situation in the mountain rocks. A piece of S. dug out of the alluvium within a few miles of Ratnapoora, 1853, was valued at more than \$20,000. In the placer-ground between the Ruby and Eldorado bars of the Missouri river, sapphires of inferior quality have been found; and at Corundum Hill, Macon co., N. C., about 100 good sapphires and rubies were found 1870–80: but the mining of the corundum gems is nowhere in the United States carried on systematically. The S. was one of the stones in the breastplate of the Jewish high-priest. Among the Greeks, it was sacred to Jupiter.—The name *Girasol S.* is given to a beautiful variety with pinkish or bluish opalescence and peculiar play of light. The *Chatoyant S.* has more pearly reflections. The *Asteria S.* has in the midst a star of six bright rays, resulting from its crystalline structure.

SAPPHIRE D'EAU: see IOLITE.

SAPPHO, *säffō*: one of the great poetesses of the world, and, with Alcæus, chief representative of the Æolian school of lyric poetry: about the end of B.C. 7th c. and beginning of B.C. 6th c.; b. in Lesbos, prob. at Mitylene; though she seems to have long been confused with a courtesan of the same name, b. at Eresos in Lesbos. She was only six years old when she lost her father Scamandronymus. She was contemporary with Alcæus, Stesichorus, and Pittacus, with the first of whom she had relations of friendship, as is seen in the surviving lyrics of both. All that we know of her is contained in some obscure references in one or two writers. Her famous plunge into the sea from the Leucadian rock, on finding her love for Phaon unrequited, is now adjudged by critics generally an invention of later times. At Mitylene, she is supposed to have been the centre of a literary coterie, all of them women, and

## SAPPINESS—SAPUCAIA NUT.

most of them her pupils in the art of poetry. Her moral character has been the subject of controversy in modern times; the most recent disputants being Bergk and Col. Mure and F. G. Welcker of Bonn, who, in *Rheinische Museum* (1857-8), appeared, Mure for the prosecution, and Welcker for the defense. It remains doubtful whether S. was a model of virtue; but there is no proof that she fell below the standard usual in her country and her times; and critics are agreed that the poets of the Middle Comedy have covered her name with scandalously untruthful caricature. To whatever opinion on this subject we may incline, there is no question of her high lyrical genius, which was the admiration of antiquity from Solon downward, so that, as Homer was spoken of as 'the poet,' S. was termed 'the poetess.' Every line shows perfect finish, and full command of all poetical resources. One or two of her odes have been pronounced matchless. Of the nine books of her poems, only fragments remain to us. The best text is in Bergk's *Poetæ Lyrici Græci* (1854); the best separate ed. is Neue's (1827).

**SAPPINESS, SAPPY, SAP-WOOD:** see under **SAP 1.**

**SAPPORO**, *sāp-pō'rā*: city in Japan, cap. of the division in which Yezo and the Kurile Islands are included; built on both sides of the Toyohira river, 10 m. from the Sea of Japan, 11 m. from the Ishikari river. Except the govt. buildings, which resemble those of the United States, most of the structures are in the native architecture. The climate is good, there is abundant water-power, factories have been established, good roads constructed, and machinery introduced. American enterprise has done much to build up the city.—Pop. about 10,000.

**SAPROGENOUS**, a. *să-prōj'ēn-ūs* [Gr. *sapros*, putrid, and root of *gennaō*, I engender]: produced by or in connection with putridity.

**SAPROPHAGOUS**, a. *sa-prōf'a-gūs*: feeding on decomposed or putrid substances.

**SAPROPHYTE**, n. *săp'rō-fīt* [Gr. *sapros*, rotten; *phuton*, a plant]: one of certain fungous plants, various bacteria, etc., living on dead organic matter. These micro-organisms, non-virulent and always present in animal intestines, may in certain conditions become virulent poisons. **SAPROPHYTISM**, n. *sa-prōf'it-izm*, the state of living on decayed vegetable matter.

**SAP-SUCKER**, n. *săp'sük-ér*: a popular name for two species of woodpecker—*Picus villosus*, the hairy wood-pecker, or larger sap-sucker, and *P. pubescens*, the downy woodpecker, or lesser sap-sucker.

**SAPUCAIA NUT**, *săp-ô-ki'yâ nüt*: seed of *Lecythis ollaria*, lofty tree, plentiful in forests of n. Brazil; of nat. order *Lecythidaceæ*. The fruit is urn-shaped, as large as a child's head, and opens by a lid which falls off. Each fruit contains a number of seeds or nuts, as in the allied Brazil nut. The flavor is finer than that of the Brazil nut, though, hitherto, the S. N. is much less common in the shops of northern countries. Its form is oval, somewhat pointed at both ends, which are slightly bent in opposite

## SARABAND—SARAGOSSA.

directions. Monkeys are very fond of the S. N., and are sometimes caught in consequence of thrusting the hand into a capsule, and not being able to withdraw it when filled with a nut, which they obstinately refuse to release.

SARABAND, n. *săr'ă-bänd* [F. *sarabande*—from Sp. *zarabanda*]: originally a slow dance used in Spain, said to be of Saracenic origin; hence a short piece of music, of deliberate character, with peculiar rhythm, in  $\frac{2}{4}$  time, the accent on the second crocheted of each measure. The S. is frequent among the *suites* or series of short pieces by Handel, Sebastian Bach, and other old masters, for the harpsichord or clavichord.

SARACEN, n. *săr'ă-sĕn* [It. *Saracino*; F. *Sarrasin*; L. *Saracenus*, a Saracen—from Ar. *Sharkeyn*, the eastern people--from *sharg*, the east]: an Arabian; a Mussulman. The name Saracens is variously employed by mediæval writers to designate the Mohammedans of Syria and Palestine, the Arabs generally, or the Arab-Berber races of n. Africa who conquered Spain and Sicily and invaded France. At a later date, it was employed as a synonym for all infidel nations against which crusades were preached, and was thus applied to the Seljuks of Iconium, the Turks, and even to the pagan Prussians. The true derivation of the word was long a puzzle to philologists; Du Cange deduced it from Sarah, the wife of Abraham—an opinion coincided in by the mediæval Christian authors; Hottinger (*Biblio. Orient.*), from the Ar. *saraca*, to steal; Forster (*Journey*), from *sahra*, a desert; while others strove to see its origin in the Hebrew *sarak*, poor; but the opinion now prevalent (though not accepted by all authorities) is, that the word was originally *Sharkeyn* or *Sharakyoun*, etc. (Ar. ‘eastern people’), corrupted by the Greeks into *Sarakenoi*, from which the Romans derived their word *Saraceni*. The epithet Sarakenoi was applied by the Greek writers (from the 1st c. of the Christian era) to some tribes of Bedouin Arabs in e. Arabia. Pliny and Animianus place the S. in Arabia Petræa and Mesopotamia, on the common frontier of the Roman and Persian empires; and the description of them by the latter, a most painstaking and accurate historian, coincides, in every important particular, with what is known at the present day of the Bedouin tribes of those regions. SAR'ACEN'IC, a. *-sĕn'ik*, or SAR'ACEN'ICAL, a. *-ik'üll*, pert. to the inhabitants of Arabia; possessing the characters of that species of decorative art and architecture introduced into Europe by the Arabs or Saracens: see ARABIAN ARCHITECTURE. SARACEN'S HEAD, frequent bearing in heraldry; represented as the head of an old man with a savage countenance.

SARAGOSSA, *să ră-gös'să*, MAID OF: woman, named Augustina, who in early life sold cool drinks to soldiers, and who fought with great courage in the Spanish army at the siege of Saragossa by the French 1809. She was promoted lieut., received several decorations, and was celebrated by Byron in *Childe Harold*. She died at Ceuta, Spain, 1857.

## SARAGOSSA—SARAKHS.

SARAGOSSA, *sâ-râ-gô'sâ*, or ZARAGOZA, *thâ-râ-gô'thâ*: city of Spain, cap. of the province of S., and formerly of the kingdom of Aragon. It stands on the Ebro, here a muddy stream which divides the city into two parts and is crossed by a noble stone bridge built 1437. The city has an imposing appearance from a distance, being adorned with numerous slender towers and spires; but the traveller, entering, finds it full of narrow winding lanes, instead of streets, though the houses—of brick—are solid structures, and many of them are the palaces of a nobility who have ceased to reside here. These buildings, rich in finely carved decorations and magnificent cornices, are now inhabited mostly by rude agriculturists; their spacious courts converted into farm-yards, and filled with dung-heaps. Everything about the city indicates decay and poverty. S. was the Celtiberian *Salduba*, but received the new name *Cæsarea Augusta* B.C. 25, of which the name S. is a corruption. It was a place of importance under the Romans, but there are few remains of the Roman city. S. was one of the first cities of Spain in which Paganism was generally renounced and Christianity adopted; it afterward became rich in relics, to which miraculous powers were ascribed. It was taken by the Moors in the 8th c., and recovered from them 1118, after a siege of five years, during which great part of the inhabitants died of hunger. It was taken by the French 1809, after a siege of eight months, and one of the most heroic defenses in modern warfare: see PALAFOX. S. has a univ., founded 1474. It has two cathedrals, both interesting as specimens of architecture; but the older is in a simple and severe style; the modern one—*Nuestra Senora del Pilar*—is very ornate. The latter cathedral boasts of a pillar on which the Virgin descended from heaven A.D. 40—an event so strongly attested, that Diego de Astorga, primate of Spain, 1720, Aug. 17, excommunicated all who even questioned it. Pilgrims flock from all neighboring parts of Spain to this pillar and the image of the Virgin, which came down from heaven. S. suffered grievously at the hands of the French 1809, and lost most of its treasures of art. It has considerable trade in agricultural produce, mostly on the Ebro; and manufactures of silks, woolens, and leather. Pop. (1887) 84,577; (1887) 92,407; (1900) 99,118.

SARAKHS, *sâ-râch's*: fortified post in Persia, on the Tajand river; important as being on the boundary between Persia and the Russian province of Turkestan; lat. 36° n., long. 61° 30' e. The traveller De Blocqueville found here (1860) a recently constructed fort, with strong walls and a ditch. Sir Charles Macgregor describes the fort as 'immense' (1879), with armament of 11 guns, garrison of 700 infantry and a few horsemen. A Russian engineer, Lessar (1882), found in the fort a battalion of Persian infantry: the armament consisted of 6 old guns; and the gunners were neither drilled nor exercised.

## SARANAC LAKES—SARATOGA.

**SARANAC LAKES**, *sür'a-näk*: Franklin co., in the Adirondack region, N. Y.; consisting of the Upper Saranac and Lower Saranac. These lakes are connected, but the Upper is about 5 m. w. of the Lower. The latter is about 8 m. n. of Mt. Seward, receives its water from the Upper Saranac and Round Lake, and is the source of Saranac river. The Upper, and larger lake, is about 8 m. long, with average width of 2 m.; 1,567 ft. above sea-level. The region of these lakes is much frequented by summer tourists.

**SARANSK**, *sá-ránsk'*: town of European Russia, province of Penza, 80 m. n. from Penza, at the confluence of the Saranga and Insara, feeders of the Sura. Pop. (1880) 13,438; (1895) 13,921.

**SARA'PIS**: see SERAPIS.

**SARASWATÎ**, *sür-üs-wät'ē*, Hind. *sür-üs-wüt'ē*, in Hindu Mythology: wife, or female energy, of the god Brahman, the first of the Hindu Trimûrti or triad. She is also the goddess of speech and eloquence, of music and the arts, and inventor of the Sanskrit language and the Devanâgari letters. She is called also *Bhâratî*; also *Mahâs'wetâ* or *Mahâs'uklâ* [from *mahat*, great, and *s'weta* or *s'ukla*, white].

**SARATO'GA**, BATTLE OF: series of fights and movements, 1777, Sep. 19, Oct. 7, 11, and 12, which compelled a British army under Burgoyne to surrender to the American army under Gates, Oct. 17. The two pitched battles which led to this were on Sep. 19 and Oct. 7, near Stillwater, N. Y., where the American army had encamped, Sep. 12, on Bemis's Heights, a spur of hills jutting out nearly to the Hudson river; while the army of Burgoyne had crossed from the e. side of the Hudson, at Schuylerville, higher up, and encamped within six m. of the American force. It was after these defeats that Burgoyne retreated Oct. 8 at night, and in the night of Oct. 9, to Saratoga, where he made his last stand. After an American brigade, at daybreak Oct. 11, had broken up the British posts at the mouth of Fish creek, and captured all their boats and all their provisions except a short allowance for five days, Burgoyne found his army, Oct. 12, completely invested, and every spot in his camp exposed to rifle-shot or cannon. Oct. 13, accordingly, a council of the corps commanders unanimously advised asking for honorable terms of surrender. Gates met this by a demand for unconditional surrender, but granted more favorable terms Oct. 15, in fear that the British forces on the Hudson would come up with succor. The captured British army was promised departure from Boston to Great Britain, under parole not to serve again against the Americans; and officers were allowed their horses, carriages, and baggage free from search. These terms were not ratified by congress; and, except the higher officers, the army were held as prisoners till the end of the war. The articles were signed Oct. 17; and 5,781 men, including officers, laid down their arms. There had been taken prisoners 1,856.

## SARATOGA SPRINGS—SARATOV.

and fully 300 of Burgoyne's men had deserted. The Americans got 35 pieces of the best ordnance then known, many munitions of war, and more than 4,000 muskets. A remarkable feature of this grand success, the effect of which on the American cause was beyond estimate, was the extent to which the separate bodies of American troops and their commanders did the work. Gates, who had displaced Schuyler in chief command Aug. 19, did not appear in the field. Daniel Morgan, of Va., with 500 picked riflemen, sent by Washington on the order of congress to the aid of Gates, was foremost in counsel, conduct, effective leadership, and courage on the field of battle. The battle of Sep. 19, which irretrievably crippled Burgoyne's force, was a splendid effort of the American husbandmen of New England, N. Y., Penn., Md., and Va. That of Oct. 7, which drove Burgoyne to desperation, was equally a battle of the men and their immediate officers. With Bunker Hill and Trenton, Saratoga is one of the grandest memories of the revolution.

**SARATO'GA SPRINGS:** town in Saratoga co., N. Y.; on the Fitchburg, the Delaware and Hudson Canal Co.'s, the Saratoga Mt. McGregor and Lake George, and the Adirondack railroads; 36 m. n. of Albany, 186 m. n. of New York. It is one of the oldest and most popular summer-resorts in the United States, and is noted for its cathartic, alkaline, iron, sulphur, and magnetic mineral springs. The efficacy of some of the springs was known to the Indians before the days of white settlements. There are more than 40 springs in and about the town, of which Congress, Hathorn, Empire, Geyser (spouting), High Rock (first visited by whites 1767), Excelsior, Star, Columbian, Vichy, Champion, Hamilton, Washington, and White Sulphur are the most important. The town is beautifully laid out, and, besides the springs, has for attractions Congress Spring Park, Woodlawn Park, race-course and clubhouse of the Saratoga Assoc. for Racing, Saratoga Lake (4 m. e.), the Saratoga battle-field (12 m. s.e.), and excellent drives and promenades. Of more than 30 hotels, the United States, Grand Union, Congress Hall, Clarendon, Windsor, Kensington, Columbian, American, Worden, and Adelphi are the largest; and there are about 60 boarding-houses. The town is lighted by electricity, and has a town hall (cost \$130,000), 9 churches, public and private schools, female seminary, 2 national banks (cap. \$225,000), 1 private bank, and 2 daily and 3 weekly periodicals. The patent for the site of S. S. was sold to private parties in Albany 1684; the first white settlement was made 1773; the town was incorporated 1819; and it was made a post-office 1826. A large business is done in bottling the mineral waters. Pop. permanent (1870) 7,516; (1880) 8,421; (1890) 11,975; (1900) 12,409.

**SARATOV**, *sá-rá-tóv'*: government in s. e. Russia; bounded e. by the river Volga; 32,624 sq. m. In 1850 the territory *east* of the Volga, formerly part of S., was erected into the govt. of Samara (q.v.). Nearly half the area of S. is waste land. A number of German colonists settled here 1765

## SARATOV—SARAWAK.

-75, and distinguished themselves by persevering industry in cultivation of the soil. Their descendants have become an important element of the population. Cattle-breeding is carried on extensively; fishing is of considerable importance.—Pop. (1889) 2,311,220; (1897) 2,419,884.

SARATOV': city of Russia, cap. of the govt. of S.; on the right bank of the Volga, 460 m. (532 m. by rail) s.e. of Moscow. The river is rapidly shoaling here; but the city, with railway-communication, is increasing in pop. and in importance. Across the river is the suburb Pokrovskaya, with pop. about 20,000. Pop. of S. apart from the suburb (1882) 112,430; (1897) 137,109. Though its houses are generally of timber, the town has a rich and picturesque appearance. Its 27 churches are ornamented with numerous towers and cupolas; and its broad streets, from the character of the houses and of the elegant equipages that pass through them, have quite a European appearance. It manufactures pottery, bricks, tobacco, silk, hosiery, etc.

SARAWAK, *sá-rá-wák'*: kingdom on the n.w. coast of Borneo; bounded s. and w. by Sambas, e. by Brunai, n. by the Bight of Datu; 35,000 to 40,000 sq. m. The coast stretches from the w. of Cape Datu, lat. 2° n., long. 109° 55' e., to the e. of the river Samerahan, long. 111° 3' e.—nearly 70 m. The Sarawak is the most important river; it has two navigable mouths in the Bight of Datu. Other rivers are the Rejang (navigable 120 m. for vessels of more than 1,000 tons), the Lündu, Samerahan, and Sadang. A chain of mountains, 3,000 ft. in height, rises in S., and along the frontier are altitudes of 4,000 to 8,000 ft. Sandstone and granite are prevailing rocks. In parts, the soil is clayey; in others, a rich mold. Except some cultivated spots, the surface is covered with forests, which abound with wild swine, harts, and a variety of monkeys. There is excellent coal near the river Sadang. Antimony ore, easily worked and shipped, is obtainable in any quantity; copper and gold have been found, and iron ore is plentiful at Lündu. Fine timber trees, e.g., iron-wood, ebony, sandal-wood, teak, and trees adapted for ship-building, grow near the mouths of the rivers. There grows also the valuable Camphor Tree (*Dryobalanops aromatica*).

The climate is not considered unhealthful. Much rain falls from Sep. to March, and the thermometer usually indicates about 83° F. Edible nests, wax, and aromatic woods are collected by the Dyaks for the Singapore market, and the plains are well adapted for growth of rice and sago. The chief exports are gutta-percha, sago flour, antimony ore, and edible birds' nests; total value (1884) \$1,145,248: imports, chiefly cloth, tobacco, brass-ware, opium, rice, and cocoa-nut oil, \$1,183,255. The trade is mostly with Singapore. The exportation of antimony and sale of opium are monopolized by the govt., and, with a small head-tax, form the chief revenue.

The original inhabitants are Dyaks, divided into about 20 tribes, and speaking different dialects; they are, for savages, mild, industrious, and honest. Malays live on the

## SARCASM—SARCINA.

coast, and the mines are worked by Chinese. From 1841 to 68, S. was governed by Sir James Brooke (q.v.), as an independent rajah. Sir James was succeeded by his son. The rajah is an absolute sovereign, but has a legislative council of natives and Europeans. Even on the testimony of the Dutch, who view with jealousy the increased influence of the British on that coast, the new rule has done much to suppress piracy and promote the civilization and prosperity of the people.

The seat of govt. is the town of Sarawak, formerly called Kütjing, about 18 m. from the mouth of the river, which is navigable for large ships. Mission-stations and schools have been erected (pop. 12,000).—Pop. of kingdom, about 250,000.

**SARCASM**, n. *sár'kázm* [F. *sarcasme*—from L. *sarcasmus*; Gr. *sarkasmos*, a sarcasm—from Gr. *sarkazō*, I strip the flesh from the bones, I sneer—from *sarx* or *sarka*, flesh: It. *sarcasmo*]: a keen, reproachful, cutting expression; a taunt or gibe. **SARCASTIC**, a. *sár-kús'tik*, or **SARCAS'TICAL**, a. *-tǐ-kál*, bitterly satirical or ironical; taunting. **SARCAS'TICALLY**, ad. *-lǐ*.—**SYN.** of ‘sarcasm’: irony; ridicule; gibe; taunt; satire; jest.

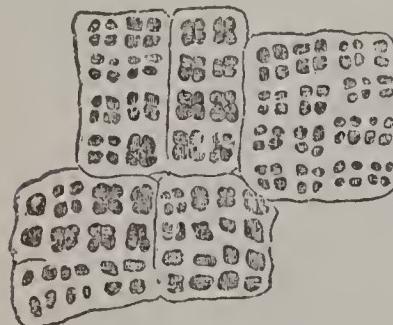
**SARCE**: see **SEARCE**.

**SARCEL**, n. *sár'sél* [F. *cerceau*—from L. *circellus*, dimin. from *circus*]: one of the extreme pinion feathers in a hawk’s wings.

**SARCELLED**, a. *sár'séld*: in her., cut through the middle.

**SARCENET**, n. *sárs'nét* [OF. *surcenet*, Saracen’s silk—from mid. L. *saracēnicum*, sarcenet (see **SARACEN**)]: a fine, thin, woven silk, used for ribbons, linings, etc.

**SARCINA**, *sár-sín'á*, or **SARCINULA**, *sár-sín'ú-lá* [L. *sarcina*, package]: genus of minute plants of very low organization, reckoned sometimes among *Algæ*, sometimes among *Fungi*. A number of forms or species are known.



Sarcina Ventriculi, magnified 1,000 diameters.

(Copied from the *Micro-graphic Dictionary*, Lond., Van Voorst.)

The first discovered, *S. ventriculi*, was observed originally by Goodsir in matters vomited from the human stomach. It is of a roundish quadrangular form, about  $\frac{1}{100}$  to  $\frac{1}{20}$  of a line in diameter; the individuals generally grouped in cubes of 4, 16, or 64 in the cube, separated by rectangular striae. Although the most common seat of sarcinæ is the human stomach, they have been detected in the stomach of the tortoise, the rabbit, the dog, the ape, and in the cæcum of the fowl; in the urine, in a considerable number of

cases; in the lungs; in the faeces and intestinal canal; in the fluid of the ventricles of the brain; in cholera stools; in the fluid of hydrocele; in the bones; and Dr. Lowe has

## SARCINE—SARCOCELE.

noticed their existence in stagnant water. It appears from the measurements of Welcher that the sarcinæ in urine are about half the size of those occurring in the stomach, also the aggregations of cells are smaller.

The occurrence of the sarcina in the urine, the fluid of the ventricles of the brain, etc., is probably a *post-mortem* phenomenon of little diagnostic or pathological importance. Its appearance in vomited fluids is, however, characteristic of a peculiar and important form of dyspepsia. The vomited matter in these cases has a faint acid smell, like that of fermenting wort, and is obviously in a state of fermentation. After standing a few hours, it becomes covered with a thick, brownish, yeast-like froth, and deposits a brown, flaky sediment. On examining the froth and the deposit under the microscope, sarcinæ are found in great abundance, together with the torulæ characteristic of Yeast (q.v.). The fluid is always acid, if sarcinæ are present. The amount of vomited matter is always large, sometimes enormous. It is usually ejected in the morning, after a night spent awake from a sense of heat, gurgling, and distention in the epigastric region; and its discharge gives almost immediate relief. Dr. Budd, one of the highest authorities in diseases of the stomach, believes that the disease consists, primarily and essentially, in some organic change, which prevents that organ from completely emptying itself, and which causes a secretion from its coats, capable, when mixed with food, of undergoing or exciting a process of fermentation; and that the development of the sarcinæ bears to this process, or to some stage of it, the same relation which the development of torulæ bears to simple alcoholic fermentation. The well-known power of sulphurous acid in checking the fermentative process induced Prof. Jenner to try in this disease the effect of sulphite of soda—a salt which readily yields its sulphurous acid; and experience has confirmed the accuracy of Jenner's induction; for this salt, administered soon after a meal, or when the fermenting process is commencing, in doses varying from 10 grains to a dram, dissolved in water, is the most effectual remedy at present known. The hyposulphite of soda, in somewhat larger doses, has similar action.

**SARCINE**, n. *sárs'ín* [Gr. *sarx* or *sarka*, flesh]: nitrogenous substance ( $C_5H_4N_4O$ ) obtained from muscular tissue, and from various glandular organs, as the liver and the spleen. It is produced also during putrefaction of proteids. S. crystallizes in needles, and forms compounds both with acids and with bases. It was formerly known as Hypoxanthine.

**SARCOCARP**, n. *sár'kō-kárp* [Gr. *sarx* or *sarka*, flesh; *karpos*, fruit]: in bot., the fleshy part of certain fruits, usually that eaten—also called **SARCODERM**.

**SARCOCELE**, n. *sár'kō-séл* [Gr. *sarx* or *sarka*, flesh; *kílē*, a tumor]: a fleshy and firm tumor on a testicle.

## SARCOCOL—SARCOPHAGUS.

SARCOCOL, n. *sár'kō-kōl*, or SARCOCOL'LA, n. *-kōl'lā* [Gr. *sarx*, flesh; *kolla*, glue]: a semi-transparent solid substance resembling gum-arabic, imported from the east and northern part of Africa, said to be the produce of the *Penæa sarcocolla* and other species, ord. *Penæacæ*.

SARCODE, n. *sár'kōd* [Gr. *sarkōdēs*, fleshy—from *sarx* or *sarka*, flesh; *eidos*, resemblance]: a term applied to the substance which constitutes the body or vital mass of the protozoa or lowest forms of animal life; animal protoplasm.

SARCODERM, n. *sár'kō-dērm* [Gr. *sarx* or *sarka*, flesh; *derma*, skin]: the fleshy covering of a seed, lying between the internal and external covering—also called SARCOCARP.

SARCOLEMMA, n. *sár'kō-lém'má* [Gr. *sarx*, flesh; *lemma*, skin, rind]: in *anat.*, proper tubular sheath investing each primary muscular fibre: see MUSCLE.

SARCOLINE, a. *sár'kō-lín* [Gr. *sarx* or *sarka*, flesh] flesh-colored.

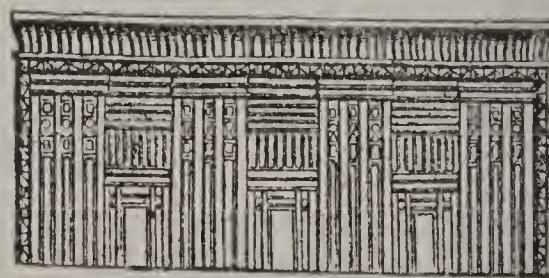
SARCOLITE, n. *sár'kō-lít* [Gr. *sarx*, flesh; *lithos*, a stone]: a stone of a rose-flesh color.

SARCOLOBEÆ, n. plu. *sár'kō-lō'bē-ē* [Gr. *sarx*, flesh; *lobos*, a lobe]: in *bot.*, thick and fleshy cotyledons, as in the bean and pea.

SARCOLOGY, n. *sár-kōl'ō-jí* [Gr. *sarx* or *sarka*, flesh; *logos*, a discourse]: the division of anatomy which treats of the soft parts of the body. SARCOLOGICAL, a. *sár'kō-lōj'-ī-kál*, pertaining to sarcology. SARCOL'OGIST, n. *-jíst*, one versed in sarcology.

SARCOMA, n. *sár-kō'má* [Gr. *sarkōma*, a fleshy excrescence—from *sarx* or *sarka*, flesh]: any firm fleshy tumor or excrescence not inflammatory—the term is comparatively rare in recent surgery. SARCOMATOUS, a. *sár-kō'má-tús*, affected with, or disposed to having, fleshy tumors. SARCOMATA, n. plu. *sár-kō'má-tă*, or SARCOMATOUS TUMORS, generally innocent growths, but some are in every respect as malignant as true cancer: see TUMORS.

SARCOPHAGUS, n. *sár-kōf'ū-güs* [L. *sarcophagus*; Gr. *sarkoph'agos*, flesh-devouring—from Gr. *sarx* or *sarka*, flesh; *phagein*, to eat]: any stone coffin or chest for a dead body; a stone tomb. The name originated in the property

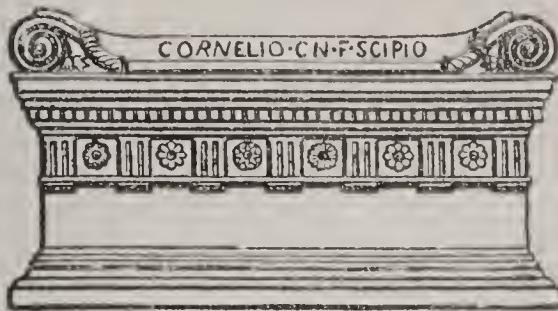


Egyptian Sarcophagus—Third Pyramid.

assigned to a species of stone, found at Assos in Troas and used in early times, of consuming or decomposing the whole body, except the teeth, within 40 days. The oldest known sarcophagi are those of Egypt, some of which are

## SARCOSINE—SARDANAPALUS.

contemporary with the pyramids. The earliest are of square or oblong form, either plain, or ornamented with lotus leaves; the later are of the form of swathed mummies, and bear inscriptions. The Phœnician and Persian kings are buried in sarcophagi. The Roman sarcophagi of the



Roman Sarcophagus—Tomb of Scipios.

earlier republican period were plain. Sarcophagi were occasionally used in the later republic, though burning had become the more general mode of disposing of the dead. The use of stone chests for interment of distinguished persons has not been altogether discontinued in modern times. **SARCOPH'AGOUS**, a.-ā-gūs, feeding on flesh. **SARCOPH'AGY**, n. -jī, the practice of eating flesh: see **CANNIBAL**.

**SARCOSINE**, n. sár'kō-sín [Gr. *sarx* or *sarka*, flesh]: a derivative of acetic acid.

**SARCOSIS**, n. sár-kō'sís [Gr. *sarkosis*, the growth of flesh—from *sarx* or *sarka*, flesh]: the generation of flesh. **SARCOTIC**, a. sár-kōt'ík, that promotes the growth of flesh. **SARCOUS**, a. sár'küs, having elements that produce flesh; of or pertaining to muscle or flesh.

**SARCOSPERM**, n. sár'kō-spér̄m [Gr. *sarx* or *sarka*, flesh; *sperma*, seed]: same as **SARCODERM**, which see.

**SARD**, n. sárd, or **SARDIUS**, or **SARDOIN**. sár'doyn [Gr. *sardion*, the sard or carnelian—so called from anc. *Sardis*, cap. of Lydia in Asia Minor, where originally found]: brownish-red variety of chalcedony, of blood-red color by transmitted light, rare, and of much higher price than common carnelian: in general, carnelian. **SARDACHATES**, n. plu. sár'dá-kátz, a name given by the ancients to varieties of agate, partaking of the nature of carnelian, or which contained layers of sard or carnelian; the flesh-colored agate when clouded and spotted. **SAR'DEL**, n. -děl, the sard. **SAR'DINE**, n. -dín, the sard, mentioned in Revelation. **SARDIUS**, n. -dí-üs, the sard, a precious stone set in Aaron's breastplate.

**SARDANAPALUS**, n. sár'dán-ă-pá'lüs [the luxurious and voluptuous king of Assyria, who is said to have perished by fire about B.C. 820]: one who lives retired in extravagant luxury, licentiousness, and effeminacy—said especially of a tyrant: see **ASSYRIA**.

## SARDES--SARDINE.

SARDES, *sár'dēs*, or SARDIS, *sár'dīs*: anciently a city of Asia Minor, cap. of Lydia, in a fertile plain between the n. base of Mt. Tmolus and the river Hermus, about 60 m. e.n.e. of Smyrna. Through its *agora*, or market-place, flowed the Pactolus, tributary of the Hermus. The city is mentioned first by *Aeschylus*. It was taken by the Cimmerians, in the reign of King Ardys (B.C. 680-631). In the reign of Croesus, the last Lydian king, S. attained its highest prosperity. It became the residence of the Persian satraps after the overthrow of the Lydian monarchy. The Athenians burned it B.C. 503, and it afterward passed under the Romans, and was the seat of a separate provincial govt. It was the seat of one of the Seven Churches mentioned in the Book of Revelation.—*Sart*, the modern Sardis, is a poor village, worthy of mention only for the ruins of the anc. city in the vicinity: of these, the chief are those of a stadium, of a theatre, and of the Acropolis.

SARDINE: see SARD.

SARDINE, n. *sár'dēn* [F. *sardine*; It. *sardina*; L. *sardina*; Gr. *sardinē*—so called from the island of *Sardinia*, near which it is caught], (*Clupea Sardina*): fish of the same genus with the herring and pilchard, smaller than the pilchard; abundant in the Mediterranean, and found also in the Atlantic Ocean, though not so far n. as the British shores. It is much esteemed for its flavor, and sardines preserved in oil are exported in large quantities from some Mediterranean ports. But the ‘sardines’ of the w. coast of France, largely exported to Britain, are generally not true sardines, but young sprats—the *garvies* of the Firth of Forth—and sometimes young herring.

Sardines appear in shoals on the coasts of the Mediterranean at particular seasons, as herrings and pilchards on those of Britain. The S. fishery on the coast of Provence is chiefly in May, June, and July; but the fishery for sprats, which are cured as sardines, and sold under that name in w. France, takes place in winter. About 1880, sardines disappeared from the coasts of Brittany, where they were estimated to be worth 15,000,000 francs (about \$3,000,000) per annum to the fishermen. They are exported to the most distant parts of the world; cured with oil in tin boxes, forming a much-esteemed delicacy and a wholesome food. To cure them in this way, they are first carefully washed in the sea, then sprinkled with fine salt; and after a few hours, the head, gills, etc., are removed; they are then washed again, and spread out on willow branches or wire-work, exposed to the sun and wind if the weather is dry; but in damp and rainy weather, to a current of air under cover. They are next put into boiling oil, in which they remain a short time; and when they are taken out, the oil is drained away from them as much as possible, and they are put into the familiar tin boxes. The boxes being filled with sardines, are filled up with oil, the lid is soldered on, and they are placed for a short time in boiling water, or exposed to hot steam. The boxes

## SARDINTA.

which have leaked or have burst in boiling are rejected, and those which remain sound are ready for the market.

In s. France, sardines are cured sometimes in red wine, and called *Sardines Anchoisées*, or Anchovied Sardines.

Pilchards also are now preserved in oil in Britain, after the manner above described; and can scarcely be distinguished from French sardines.

Several species of small *Clupeidæ*, much resembling the S., are found in different parts of the world, and used in the same way as the S. of the Mediterranean. One species frequents the s. and e. coast of Ceylon in such vast shoals that 400,000 have been taken at a single haul of the nets in a little bay; and when the shoal approached the shore, the broken water became as smooth as if a sheet of ice had been floating below the surface.--In the United States, menhaden (*Alosa menhaden*) and other small fish are sold often as sardines, sometimes with foreign labels; cotton-seed oil is much used for the purpose and is quite as good, when pure and sweet, as olive-oil. The canning of these fish is an extensive industry on the Maine and other coasts.

**SARDINIA**, *sár-dín'ī-a*: former kingdom in Italy, the nucleus of the present *Kingdom of Italy*. It included the duchies of Savoy and Genoa, and parts of those of Montferrat and Milan, the principality of Piedmont, the county of Nice, and the islands of Sardinia and Caprera; in all, 19,564 sq. m. of continental territory, pop. (1857) 4,590,260; and 9,205 sq. m. of insular territory, pop. 577,282; total area 28,769 sq. m., pop. 5,167,542. In 1859 it was increased by the addition of the Austrian portion of the Milanese, and diminished by the cession 1860 of Savoy and Nice to France, the change in the continental territory being shown by the following figures: 21,099 sq. m., pop. 6,530,232; the insular territory remaining unaltered. The various districts above mentioned differ greatly in physical configuration and climate: for the more important, see the several titles: also **ITALY**. The Rom. Cath. religion was established by law 1848, Mar.; but monastic orders, except those which are also benevolent institutions, were suppressed 1855, May 28. In 1859 the army amounted to 76,172 men, and the fleet to 29 ships (none of them men-of-war), with 436 guns; the revenue (1858), mostly from customs, duties, and direct taxation, \$28,184,602; expenditure \$28,916,523: national debt (1858) to \$131,612,736. The annual import-trade amounted (1857) to a declared value of \$92,938,042; exports \$70,980,508.

The kingdom of S. was originated by a treaty (1720, Aug. 24) between Austria and the Duke of Savoy (q.v.), by which the latter agreed to surrender Sicily to the former on condition of receiving in exchange the island of Sardinia, and the erection of his states into a kingdom. In 1730 *Victor-Amadeus I.*, last Duke of Savoy and first King of S., resigned the throne to his son, *Charles-Emmanuel I.* (reigned 1730-73); but repenting his resolution, and attempting to resume the govt., he was put in prison, where he died 1732.--His son, by joining with France and

## SARDINIA.

Spain against Austria, obtained (1735) the territories of Tortona and Novara, to which were added (1743), during the war of the Austrian Succession, the county of Anghiera and the territories of Vigevano and Pavia. He was author of the code known as the *Corpus Carolinum*.—His successor, *Victor-Amadeus II.* (reigned 1773–96), acceded to the European coalition against France, and was deprived in consequence of Savoy and Nice 1792; but sustained by England and the pope, he raised an army, and maintained himself in his kingdom till 1796, when Bonaparte forced him formally to relinquish the territories that he had lost.—His son, *Charles-Emmanuel II.* (reigned 1796–1802), was at first an ally of France; but the Directory, 1798, compelled him to surrender all his continental possessions, which were then incorporated with France; and it was not till the first peace of Paris (1814, May 30) that the House of Savoy regained its territories. The Congress of Vienna (1814, Dec.) annexed to S. the ancient republic of Genoa, and the second peace of Paris (1815) restored a small portion of Savoy, which France still possessed, and gave the king a protectorate over the small principality of Monaco.—Long before this time, Charles-Emmanuel had abdicated, and his brother, *Victor-Emmanuel I.* (reigned 1802–21), succeeded to his rights, and made his entry into Turin 1814. His return restored the ancient misgovernment; and similar political changes in the other Italian states revived the societies of the ‘Carbonari’ (q.v.) and similar secret associations, whose aims were supported by a portion of the nobility and army, and by the heir-presumptive to the throne, Charles-Albert, Prince of Savoy-Carignan. The insurrection of the army 1821, Mar. 9, 10, brought on a general revolution.—But the king having abdicated in favor of his brother, *Charles-Felix* (reigned 1821–31), and the Austrians having come to the rescue, the insurrection was put down. Under protection of an Austrian army of occupation till 1823, Charles-Felix re-established absolute power, recalled the Jesuits, persecuted the Protestants, and took various other measures for rooting out all opposition.—On his death, the elder line of Savoy became extinct, and the succession fell to the cadet branch of Savoy-Carignan (see SAVOY, HOUSE OF), whose rights had been recognized by the Congress of Vienna, and *Charles-Albert* (q.v.) (reigned 1831–49) ascended the throne. The liberals were gratified with some slight reforms, but the power of the clergy was untouched, and the conspiracy of 1833, Nov. 30, at Turin, and the mad inroad of Mazzini, at the head of a small band of German, Polish, and Italian refugees, 1834, Feb., only disturbed the country, and confirmed the govt. in its despotic policy. The interior administration was, however, carried on with more energy than under the two previous reigns, through the conclusion of treaties with France, Britain, Turkey, the Low Countries, Denmark, Austria, and the Hanse Towns, etc.; the construction of roads, bridges, and railways was prosecuted, and agriculture and other industries were encouraged. In 1842 the king commenced a gradual

## SARDINIA.

but progressive liberal policy, promulgated a limited act of amnesty to political offenders, relaxed the severity of censorship, reformed judicial administration and prison discipline, and abolished the feudal system in Sardinia. The kingdom participated in the agitations of 1846, 7, which affected the whole peninsula, but was wholly exempt from insurrections and conspiracies, the people contenting themselves with expressing their views and wishes in petitions and demonstrations showing confidence in the govt. 1848, Feb. 8, the king announced a new and extremely liberal constitution, which was proclaimed soon afterward; a liberal law of election was decreed, the first Sardinian parliament convoked for Apr. 17, and the act of amnesty declared general. In the midst of these changes, the revolution broke out, and Charles-Albert, who was saluted with the title of 'the sword of Italy,' put himself at the head of the movement, and declared war against Austria. (See ITALY: RADETSKY: ETC.)—On the day after the fatal rout of Novara (1849, Mar. 13), Charles-Albert abdicated, and was succeeded by his son, Victor-Emmanuel (q.v.), who, in alliance with France, declared war against Austria 1859, and by 1861, Mar., was in possession of the whole of Italy, except Venetia and Rome, and exchanged the title king of S. for that of king of Italy. Venetia was added to the kingdom 1866, and the Papal States 1870, when the union of Italy was complete.—See ITALY.

**SARDINIA, ISLAND OF:** largest, after Sicily, of the islands of the Mediterranean; directly s. of Corsica, from which it is separated by the Strait of Bonifacio, 7 m. wide in its narrowest part. S. is about half-way between central Italy and Africa, and between s. Italy and Spain; length 166 m.; greatest breadth 90 m.; 9,361 sq. m. The country is mostly mountainous, some peaks of the central chain having an elevation of 6,300 ft. The Limbara range, in the n.w., is granite, the diagonal chain paleozoic, and the central range of tertiary calcareous formation; many of the peaks, especially within the semicircle formed by the Limbara range, are extinct volcanoes. The coasts are generally steep and rugged. A few islands lie off the coast, and all of any considerable size and importance are at the corners: off the n.e. corner are the Maddalena group, consisting of Maddalena, Caprera, and five or six little islets; off the n.w. corner is Asinara; and off the s.w. corner are San Pietro and San Antioco. The island is well supplied with streams, but none have a long course, and only one is partially navigable.

*Soil and Climate.*—Between the mountain ranges are several wide valleys, of remarkable beauty and fertility. There are also several large sandy or stony districts (*marchie*), of almost irremediable sterility. The mountain-sides are partly rocky and barren, partly clad with woods, partly fitted for pasture. The climate is mild, temperature ranging from 34° to 90°; but in the low lands, which are largely marshy, and in the neighborhood of the littoral lakes, a deadly malaria (*intemperie*) prevails, especially in autumn. The inhabitants of those districts, who

## SARDINIA.

can afford to do so, migrate annually during the unhealthful season; and those who are compelled to remain never leave their houses till an hour after sunrise, and carefully return before sunset, taking all precautions to prevent the entrance of the poisonous gas by door or window. The inhaling of the miasma by a stranger is considered among the inhabitants to be as deadly as a dose of strong poison.

*Products.*—Wheat, barley, maize, oranges, and other fruits are produced in abundance, and are esteemed for excellent quality. The vine is extensively cultivated, but from carelessness in the process the wine is not so good as might be expected. The olive-grounds are extensive, and the produce excellent. Tobacco (of inferior quality), cotton, linseed, flax, hemp, saffron, and madder are produced. The woods which clothe the mountain-sides are chiefly of cork, chestnut, oak, pine, and other timber trees, which form a considerable item in the export-trade. Many mountain-slopes have, however, been much reduced in fertility by excessive cutting down of timber.

The bullock is the favorite animal for draught, but horses also are used; and a small species of pony, in ancient times esteemed by the Roman matrons, is still found. The sheep are of ordinary quality, and the swine are said to be among the best in Europe. Few cows are kept, and cheese is obtained almost wholly from sheep's and goat's milk. Wild boars and deer are not uncommon, and the Moufflon (q.v.) is found in the alpine woods. Foxes, rabbits, hares, and martens are so abundant that a large export-trade in their skins is carried on. The fisheries are important.

Manufactures are insignificant, being mostly the result of home industry; but the royal manufactories of gunpowder, salt, and tobacco are important. S. is rich in minerals, but these, like its other resources, are as yet little developed; silver, mercury, granite, gypsum, marble, alabaster, amethyst, and other precious stones are found; and lead, iron, and copper are in considerable abundance. Gold, bismuth, and antimony are said to exist.

*Inhabitants.*—The inhabitants bear considerable resemblance to the Greeks, and speak a barbarous dialect, composed chiefly of Spanish, Arabic, and Italian; they are ignorant and bigoted, having been subjected to misgovernment and oppression from their emancipation from Roman rule till 1836, when feudal tenure was abolished, and the enormous power of the clergy somewhat reduced. They are generally stupid and indolent, clothe themselves in sheep-skins, and invariably profess the Rom. Cath. religion. The custom of the *Vendetta* is frequently practiced, though not to the same extent as in Corsica.

*History.*—S., at first called by the Greeks *Ichnusa* and *Sandaliotis* (from its resemblance to a human footprint), and afterward *Sardo* by the Rouans, was colonized at a very early period. The first really historical event is its conquest, about B.C. 480, by the Carthaginians, who, during their occupation, rendered the island a famous corn-

## SARDINIAN—SARDONYX.

producing country. They were forced to abandon it to the Romans (B.C. 238), who gradually subdued the rebellious natives, and made it a province of the republic; but on three several occasions, formidable outbreaks required the presence of a consul with a large army to restore the authority of Rome. From this time it was held as a subject province, and on account of its value as ‘the granary of Rome’ was carefully protected from invasion. It fell into the hands of the Vandals and other barbarians, and was recovered by the Eastern Empire A.D. 534; but was finally separated from the Roman Empire by the Saracens. They were driven out in their turn by the Pisans, one of whose deputy-governors, being supported by the Genoese, obtained the erection of S. into a kingdom (1154) by Frederick I. The popes, who had long claimed a right of suzerainty over the island, gave it (1296) to James II. of Aragon; and it continued in the possession of Spain till 1708, when it was taken by the British, and by the peace of Utrecht (1713) it was yielded to Austria. In 1730 Austria gave it to the Duke of Savoy in exchange for Sicily, and it has since formed part of the dominions of the House of Savoy. When S. came to the House of Savoy, two-thirds of it belonged to barons of Spanish descent, and the most of the remainder to the clergy, who also levied a tithe on the whole produce; and for a century afterward it was shamefully neglected by the govt. However, in 1836,7, patrimonial rights and compulsory labor were abolished; and 1838 and 47, the peasants were freed from the rest of the vexatious imposts with which they had been burdened. In 1847 the vice-royalty was abolished, and S. incorporated with the Sardinian kingdom (q.v.). The island is divided into two provinces: Cagliari in the s. (5,184 sq. m.; pop. [1901] 483,548); and Sassari in the n. (4,122 sq. m.: pop. 308,206). Cagliari is the cap. of the whole island.—Total pop. of island (1881) 682,012; (1890) 726,522; (1901) 791,754.

**SARDINIAN** a. *sár-dín'i-án*: pertaining to the people or island of *Sardinia*: N. a native of Sardinia.

**SARDONIC**, a. *sár-dón'ík*, or **SARDO'NIAN**, a. *-dó'ní-án* [supposed to be so called from the *herba Sardon'ia*, a plant of Sardinia, which is said when eaten to produce convulsive motions of the cheeks and lips as in laughter] : forced; heartless; ironical; fiendish—applied to laughter, smiles, or grins, as a *sardonic laugh*, by which is often intended a sarcastic laugh; but whose original application was to a convulsive horrible grin, the forced result of some diseases, e.g. tetanus: see **RISUS SARDONICUS** under **RISUS**.

**SARDONYX**, n. *sár'dó-níks* [L. *sardonyx*; Gr. *sardónux*, a sardonyx—from the anc. Sardis, in Asia Minor, and *onux*, a nail—so named from its resemblance in color to the flesh under the finger-nail]: a precious stone, a variety of onyx, composed of alternate layers of sard and nearly opaque-white chalcedony, the most beautiful, the rarest, and the most valued form of onyx (q.v.).

## SARDOU—SARGENT.

SARDOU, *sár-dó'*, VICTORIEN: dramatist: b. Paris, 1831, Sep. 7. He studied medicine for a time, but financial embarrassments of his family compelled him to make a livelihood by teaching history and mathematics, and by writing for newspapers, etc. His first comedy, *La Taverne des Étudiants* (1854), was an utter failure. He was reduced to abject poverty 1857, and was nursed through an attack of typhoid fever by a neighbor, a Miss de Brécourt, whom he married 1858. He tried his hand again at dramatic composition, and before long had achieved fame and fortune; his wife died 1867. Of his numerous works—comedies, vaudevilles, *féeries*, comic operas, etc.—nearly every one has been received with favor at Paris, and many of them have been brilliantly successful on the British and the American stage. The most notable successes have been: *Les Premières Armes de Figaro* (his first success, 1859); *Nos Intimes* (1861); *Fernande* (1870); *Le Roi Carotte* (1872); *Andréa* (1873); *L'Oncle Sam* (1873); *Ferréol* (1875); *Daniel Rochat* (1880); *Odette* (1881); *Divorçons* (1881); *Fédora*; *Théodora*. He was elected member of the French Acad. 1877.

SARGASSO, n. *sár-gás'só*, or SARGAS'SUM, n. *-súm* [Sp. *sargazo*, sea-weed]: the floating sea-weed of the n. Atlantic, covering large areas, known by the name SARGASSO SEA: see GULF-WEED.

SARGENT, *sár'jént*, EPES: 1813, Sep. 27—1880, Dec. 31; b. Gloucester, Mass. He studied at the Boston Latin School, and took a partial course at Harvard College; engaged in newspaper work in Boston; was on the editorial staff of the New York *Mirror* several years, but about 1846 again settled in Boston, and for some years was editor of the *Evening Transcript*. He wrote several plays, some of which were very successful; edited a series of reading-books for schools; was a contributor to the *Atlantic Monthly* and other magazines; assisted in the preparation of some of the Peter Parley books by S. S. Goodrich; and edited the lives and works of several British poets, the works of Franklin, and *The Modern Drama* (15 vols.). He also published three volumes of poems and some very popular fugitive pieces, miscellaneous works, and several novels and stories for young people. His *Cyclopædia of English and American Poetry*, completed a little before his death, was published 1883. He died at Boston.

SARGENT, HENRY: artist: 1770, Nov. 25—1845, Feb. 21; b. Gloucester, Mass.; son of Daniel S. After studying at an academy, he went to London, and for some time was pupil of Benjamin West. On his return he opened a studio in Boston, and was quite successful. He was adjt.gen. of Mass. 1814, and was afterward aide to Gov. Brooks and Gov. Strong. S. planned an elevated railroad. Among his most famous pictures were the *Landing of the Pilgrims*, which he gave to the Pilgrim Soc. at Plymouth; *The Dinner Party*; and *Christ's Entrance into Jerusalem*. He died at Boston.

## SARGENT—SARMATIAN.

SARGENT, PAUL DUDLEY: soldier: 1742-1828. Sep. 28; b. Salem, Mass.; son of Col. Epes S., who was long prominent in colonial affairs. He was in command of a patriot regt. at the siege of Boston by the British; received a wound in the battle of Bunker Hill; became brig. gen. 1776; and was in the battles at Harlem, White Plains, Trenton, and Princeton. After the war he was for a long period chief-justice of the Hancock (Me.) co. court of common pleas, and held other offices. He was the first representative of his district in the legislature. He died at Sullivan, Me.

SARGENT, WINTHROP: soldier: 1753, May 1—1820, June 3; b. Gloucester, Mass. He graduated from Harvard College; served in the revolutionary war, was in many battles, and reached the rank of major; was secretary of the Ohio Company 1787, and was afterward its governor; was govt. surveyor of the Northwest Territory; was in the Indian wars, and was appointed adjt. gen. He was a member of learned bodies, and published *Boston*, a poetical work, and, with B. B. Smith, *Papers Relative to Certain American Antiquities*. He died at New Orleans.

SARI, *sá'rē*: city, cap. of the province of Mazandaran, Persia; in the midst of gardens, on the banks of a small stream, the Tejend, 18 m. s. of the Caspian Sea. It is a modern town, built near the ruins of a very ancient one; and has some trade with Russia and with interior Persia. Pop. about 8,000.

SARIGÜE, n. *să-rīg'* [F. *sarigue*; Brazilian, *carigueya*] a species of opossum found in Cayenne.

SARK, n. *sárk* [AS. *syrce*; Scot. *sark*; Icel. *serkr*, a shirt]: a kind of tunic; a shirt. SARKED, a. *sárkt*, covered with thin deals. SARKING, n. *sárk'ing* and SARKIN, n. *sárk'in*, thin boards for lining, to be placed under slates, and for similar purposes.

SARK, *sárk*: one of the Channel Islands: see JERSEY.

SARLAC, n. *sár'lák*, or SAR'LYK, n. *-lík* [Mongolian, *sarlyk*]: the grunting ox of Tartary—called also the *yak*.

SARMATIAN, a. *sár-má'shí-án*, or SARMATIC, a. *-má'tík*, pert. to Sarmatia [-*má'shí-á*] and its inhabitants. SARMA'TIANS, n. ancestors of the Poles and Russians, extending from the Vistula to the Don. [The root *s-rm* in this word is prob. the same as *s-rb*, so that it has been conjectured that Sarmatians has the same ethnological meaning as *Serbi* and *Servi*. The oldest Greek form of the word (the only one found in Herodotus) is *Sauromatae*]. The region occupied by the S. embraced (according to Ptolemy, our chief authority) a portion both of Europe and Asia.—1. The European S. are found as far w. as the Vistula; as far n. as the Veneticus Sinus (Gulf of Riga?), or even further; as far e. as the Crimea and the Don; and as far s. as Dacia. Roughly speaking, their territory corresponded to modern Esthonia, Lithuania, w. Russia, and parts of Poland and Galicia. The principal, at least the best-known nations among the European S. were the Pencini and Bastarnæ, about the mouths of the Danube, and in

## SARMENT—SARMIENTO.

Moldavia and Bessarabia; the Jazyges and Roxolani, probably in Kherson, Tauris, and Ekaterinoslav; the Venedi and Gythones, about Riga, Meniel, and Elbing; and the Avareni, at the sources of the Vistula.—2. The *Asiatic S.* are found as far w. as the Tanais (Don), as far e. as the Caspian, as far s. as the Euxine and Caucasus, and as far n. as the watershed between the rivers that fall into the White Sea and the Black; but we have no distinct knowledge of their territorial possessions. N. of the Don, in the region now occupied by the Don Cossacks, dwelt the *Perierbidi*; s.e. of it, about Astrakhan, the *Jaxamatæ*. Beyond the Perierbidi lay the *Asæi*, the ‘horse-eating’ (*Hippophagi*) *Sarmatæ*, the ‘Royal’ and Hyperborean *Sarmatæ*, and many others, besides a multitude of nations in the region of the n. Caucasus. The question arises: What were these *Sarmatians*? The vast territory over which they spread, and the manifest inclusion under the name S. of different races, e.g., Goths, Finns, Lithuanians, Circassians, Scythians, and Slaves, prove that the term was loosely used by Ptolemy and his contemporaries, like the older Herodotean term *Seythians*, and is not strictly ethnological; yet Dr. Latham’s view (see Smith’s *Dictionary of Greek and Roman Geography*, arts. *Sarmatia* and *Scythia*), that it designated on the whole Slavic races, and in particular the n.e. portion of the great Slavic family, may be regarded as nearly certain. They are conjectured to have been of Median origin. Herodotus and Hippocrates represent them as a nomadic people, whose women were hunters and soldiers with and like the men. Ancient legends recounted their descent from the Amazons by Scythian fathers.—The S. figure prominently among barbarians who vexed the n.e. frontiers of the Roman Empire.

**SARMENT**, n. *sâr'mént*, or **SARMENTUM**, n. *sâr mén tûm* [L. *sarmentum*, a twig—from *sarpo*, I trim F *sarment*, a vine-shoot]: in bot., a slender twining stem which supports itself by means of others; a running stem which gives off leaves and roots at intervals, as the strawberry. **SAR'MEN'TÆ**, n. pl. *-tô'së*, applied to plants which have climbing stems and branches, as the vine. **SARMENTOUS**, a. *sâr'mén'tûs*, applied to a running naked stem having only leaves in bunches at the joints or knots where it strikes the ground—also **SARMEN'TOSE**.

**SARMIENTO**, *sâr-mé'-én'tô*, DOMINGO FAUSTINO: statesman: 1811, Feb. 13—1888, Nov. 2; b. San Juan, Argentine Republic. When eighteen years of age he participated in an unsuccessful revolution; fled to Chili, where he served in a store and taught school; opened a female school in San Juan 1836, but 1840 returned to Chili, and engaged in educational work and afterward in journalism. He opened the first normal school in S America, and founded the first daily newspaper in Santiago. He was employed by the Chilian govt. 1845–47 to study the school systems of Europe and the United States; settled at Buenos Ayres, 1855; was prominent in educational work; founded a college 1857; was senator, minister of the in-

## SARNIA—SARPI.

terior, gov. of San Juan, minister to Chili and Peru and to the United States, and was pres. of the Argentine Republic 1868–74. Under his administration the prosperity of the country was greatly increased. He published educational works; a *Manual of the History of Ancient Peoples*; a *Life of Abraham Lincoln*; and other works. He died at Asuncion.

**SARNIA**, *sár'ni-a*, or **PORT SARNIA**: city and port of entry, cap. of Lambton co., Ontario, Canada; at the mouth of the St. Clair river, and on the Grand Trunk and the Erie and Huron railroads; 61 m. w. from London. There are three weekly newspapers, two banks, a custom-house, large lumber-mills; and manufactures of woolen, leather, wood, and iron. Point Edward, formerly known as Port Sarnia, is now included in the city limits. There is a tunnel to Port Huron, Mich. Steamers on their way to the upper lakes make the last stop at Sarnia. Pop. (1901) 8,176.

**SARPLAR**, n. *sár'plár* [F. *serpillière*; Sp. *arpillera*, sackcloth, packcloth]: a sack of wool containing 80 tds of 28 lb. each. **SARPLIER**, n. *-plér*, coarse cloth of hemp, etc., used for packing goods.

**SARNO**, *sár'nō*: city of s. Italy, province of Salerno, on the river Sarno, 13 m. n.w. of Salerno. It is a well-built town, with a very handsome cathedral, containing some good paintings; and has a seminary for priests, a hospital, several paper-manufactories, and foundries. Its environs are noted as producing very fine silk. In the centre of the town are springs of sulphureous and chalybeate waters. Among buildings worthy of notice is the ancient castle of the Barberini family.—Pop. about 11,445.

In the plain near S., Teias, King of the Goths, in a desperate battle with the Greeks commanded by Narses, 553, was vanquished and slain, and the reign of the Goths in Italy brought to a close.

**SARPI**, *sár'pē*, **PIETRO**, better known by his monastic appellation, **FRA PAOLO** (Brother Paul): 1552, Aug. 14—1623, Jan. 15; b. Venice. He became an early proficient in mathematics and general literature; but resolved to embrace the monastic life, and in his 20th year took the vows in the Augustinian order of the Servi di Maria (see SERVITES). Soon afterward he was appointed by the Duke of Mantua prof. of theol. in that city; but he soon returned to his order, of which he was elected provincial in his 27th year. He continued his studies in languages, mathematics, astronomy and other branches of nat. philosophy, including the medical and physiological sciences, in which he attained proficiency, being by some writers regarded (on insufficient grounds) as sharing in the discovery of the circulation of the blood. The freedom of some of his opinions led to his being charged at Rome with heterodox views; and though held free from actual heresy, his tendencies became an object of suspicion. In the dispute between the republic of Venice and Paul V. (q.v.) on the subject of clerical immunities

## SARPI.

and of the papal prerogative of interference with national government, S. threw himself energetically into the anti-papal party. It has been said of his activity in this controversy that ‘it registers the progress of mankind, and forms an epoch in the history of free discussion.’ S.’s appeal was to reason and to history. Being summoned to Rome to account for his conduct, he refused to obey, and was accordingly excommunicated as contumacious. The zeal of S.’s opposition to Rome drew on him the hostility of the partizans of the Roman claim; and an attempt was even made upon his life by a band of assassins, who found refuge in the papal territories. S. confined himself thence-forward within the inclosure of his monastery. In this retirement he composed his celebrated *History of the Council of Trent*, long the subject of controversy and criticism. It was published in London by Antonio de Dominis, ex-bishop of Spalatro, who had recently conformed to Protestantism, at first under the pseudonym *Pietro Soave Polano*, an anagram of the real name of the author, *Paolo Sarpi Veneto*; and it had great popularity with the adversaries of Rome in England and throughout the continent. It is not a simple history of the proceedings of the Council, but rather a controversial narrative of the discussions, in which the writer freely enters into the merits of the doctrines under discussion, and in many cases evinces a strong anti-Rom.-Cath. bias. His judgment of the motives and of the conduct of the members of the Council, especially of the representatives of the pope and his partizans in the assembly, is uniformly hostile, and has been accepted by Protestants as a strong testimony against Rome from a member of the Roman Church. But whatever judgment we may form of S.’s credibility on his own merits, it is idle to regard him as a member of the Church of Rome. Ranke, in his critical examination of S.’s work, and of the voluminous counter-history of the Council of Trent by the Jesuit (afterward Cardinal) Pallavicino, declares that his unsupported statements cannot be accepted with entire security when the question concerns a damaging narrative of some intrigue of the legates in the Council, or of some cabal of the Italian bishops in the interest of Rome. Ranke finds both these books the works not of historians but of advocates; neither of them aims to falsify, but in each a strong bias has unconsciously given untruthful color and shading. The literary qualities of S.’s work, Ranke rates very highly. The French translation is by the celebrated Courrayer, and is enriched with copious vindictory and critical annotations. His life was without reproach; his disposition was placid and unselfish; and his long-tried zeal as the champion of the republic made him the favorite of his fellow-citizens. His *History of the Council of Trent* has been reprinted in numberless editions in most of the languages of Europe; and his collected works were pub. Verona, 8 vols. 4to, 1761-68; and Naples 24 vols. 8vo, 1798.

## SARRACENIA—SARREGUEMINES.

**SARRACENIA**, *sär-rā-sē'ni-a*, or SIDE-SADDLE FLOWER: genus of singular marsh plants, natives of N. America. *S. purpurea* is common from Hudson's Bay to Carolina: the other species are confined to the southern states; and include the Red-flowered Trumpet-leaf (*S. rubra*), with leaves 1 ft. long; the Great Trumpet-leaf (*S. Drummondii*), of Fla., leaves 2-3 ft. long; the Parrot Pitcher-plant (*S. psittacina*), with short, spreading leaves, having an inflated, spotted hood; the Spotted Trumpet-leaf (*S. variolaris*), and the Yellow Trumpet-leaf (*S. flava*), the leaves with colored veins, and 2 ft. long; the last two species having yellow flowers, the others purple. They are herbaceous perennial plants, with radical leaves and scapes, which bear one or more large flowers. The leaves are of very



*Sarracenia purpurea:*

1, a flower, from which the corolla has fallen off, showing the very large 5-angled stigma; *a*, a fully expanded flower; *b*, germen; *c*, section of the fruit.

remarkable structure, the stalk being hollow and urn-shaped, and the blade of the leaf articulated at its apex, and fitting like a lid. It is from the form of the leaves that the name Side-saddle Flower is derived.—The genus is the type of the small nat. order *Sarraciaceæ*, the only other genus of which has been discovered in Guiana. The order is closely allied to *Papaveraceæ*.

**SARREGUEMINES**, *sär'gēh-mēn'* (Ger. SAARGEMÜND, *sär'gēh-münt*): formerly a frontier town in n. France, but since the war of 1870-1 a German possession; in the province of Alsace-Lorraine, 41 m. e. of Metz. It is famous for its pottery; hempen fabrics and velvets also are made. Pop. (1880) 9,573; (1890) 13,076.

## SARSAPARILLA.

SARSAPARILLA. n. *sár'sú-pá-říl'lă* [Sp. *zarzaparilla*—from Sp. *zarza*, a bramble, and *parilla*, a small vine: It. *salsaparigliaSmilax* (q.v.), though the species yielding the different kinds brought to the market have not yet been fully ascertained. In the United States the name S. is applied to plants very far removed botanically from the *Smilax*, namely to certain species of *Aralia*, of the Ginseng family—the Common Wild S. (*A. nudicaulis*) and the Bristly S. (*A. hispida*), the former used as a substitute for the officinal S. Among the species of *Smilax* furnishing the true S. of commerce, the three principal are believed to be *S. officinalis*, *S. medica*, and *S. papyracea*; twining shrubs with prickly angular stems; the first with large ovate-oblong, acute, heart-shaped, leathery leaves; the second with shortly acuminate smooth leaves, the lower ones heart-shaped, the upper ones approaching to ovate; the third with membranous, oval-oblong, obtuse



Sarsaparilla.

leaves. These shrubs are natives of warm parts of America; *S. officinalis* and *S. papyracea* being found in S. America, and *S. medica* on the Mexican Andes. Some botanists regard them as mere varieties of one species.

The part of the plant used in medicine is the dried root, of which the following characters are given in the Brit. Pharmacopœia: ‘Roots not thicker than a goose quill, generally many ft. in length, reddish-brown, covered with rootlets, and folded in bundles about 18 inches long, scentless; taste mucilaginous, feebly bitterish, faintly acrid.’ S. has been analyzed by various chemists, and appears to consist of volatile oil, most of which is expelled during the process of drying, of a white crystallizable neutral substance named *Smilacin*, whose composition is represented by the formula  $C_{16}H_{13}O_5$ , an acrid bitter resin, lignin, starch, and mucilage. S. is one of the alterative and dia-

## SARSE—SARTAIN.

*sarsaparilla* medicines; and is very valuable in the opinion of many, but of little worth according to others. The cases in which it is deemed serviceable are chronic rheumatism, secondary syphilitic affections, chronic skin-diseases, etc. To be of any service, S. must be taken in considerable doses. The compound decoction, formerly known as the *Decoction of Sweet Woods*, is the best preparation, in doses of four or six ounces three times a day. It is often used as a vehicle for more active medicines.

The root of *S. aspera*, native of s. Europe, is used as a substitute for S., though inferior, and is called Italian S.

The root of *Hemidesmus Indicus*, climbing shrub of nat. order *Asclepiaceæ*, is used in India as a substitute for S., and is called Indian S.: the plant is common in all parts of India: the root has a peculiar and pleasant aromatic odor and bitter taste.

In Germany, the roots of *Carex arenaria*, *C. disticha*, and *C. hirta* (see CAREX) are occasionally used as a substitute for S., under the name German sarsaparilla.

**SARSE**, n. *sârs* [F. *sas*; OF. *saas*, a sieve—from low L. *setaceum*, something made of bristles—from L. *seta*, a bristle: Sp. *sedaza*]: a fine sieve.

**SARSEN-STONES**, *sâr'sen-stônz*: in the s. of England, a name given to those large tabular blocks of sandstone which are scattered over the surface of the Chalk downs—known also as *Druid stones* and *grey wethers*, but which had no connection with the Druids.

**SARSFIELD**, *sârs'fîld*, PATRICK, Earl of Lucan: soldier: 1645–93; b. Lucan, Dublin co., Ireland. His first milit. service was as ensign in the regt. of Monmouth, in the army of the king of France; then he was lieut. in the guards of the king of England: at the revolution he followed James II. into France, and 1689 accompanied him to Ireland. James made him member of his privy council, col. of horse, and brigadier; then maj.gen., Earl of Lucan, etc. At the siege of Limerick he distinguished himself by planning and executing a night sally from the town and a raid around the enemy, destroying a convoy of artillery and munitions. He was in all the battles till the treaty of Limerick, 1691, Oct. Then he passed into France, was commissioned maj.gen., and served with great distinction against the English and their Dutch allies in the Low Countries. He received a mortal wound in the battle of Neerwinden.

**SARTAIN**, *sâr'tân*, JOHN: artist: b. London, 1808, Oct. 24. He learned line and mezzotint engraving and studied painting, came to the United States 1830, became famous as engraver and etcher, was connected with various periodicals, which he illustrated, has made a great number of plates for book-illustration and for framing, and has designed some fine monuments. He is a member of various societies and has received decorations from foreign governments. For many years he resided in Philadelphia. He d. at Philadelphia, 1897, Oct.

## SARTAIN—SARTO.

SAR'TAIN, WILLIAM: artist: b. Philadelphia, 1843, Nov. 21; son of John S. He was taught engraving by his father, and afterward studied at the Pennsylvania Acad. and in Paris. He remained abroad eight years, settled in New York 1877, and became a successful teacher as well as engraver and painter. He was one of the founders of the Soc. of Amer. Artists, and is connected with other associations. He has painted many Italian scenes and numerous figures, which have had much popular favor.

SARTHE, sârt: inland dept. of France, n. of the Loire; 2,390 sq. m. It is a country of plains, traversed by low hills and by undulations clothed with vines, of large picturesque forests, and of pleasant valleys. The soil is fertile, productive in grain and in clover; hemp is cultivated, and hempen fabrics are largely manufactured. The wine produced is of mediocre quality. The climate is healthful and temperate. Swine and cattle are reared in large numbers for the Paris and other markets.—S. is divided into the four departments Mans, La Flèche, Mâmes, and St. Calais: the cap. is Le Mans (see MANS, LE). —Pop. of dept. (1891) 429,737; (1901) 422,699.

SARTI, sâr'tî, GIUSEPPE: musical composer: 1729, Dec. 1—1802, July 28; b. Faenza in the Papal States. He studied under Padre Martini at Bologna; and 1752 produced his first opera, *Il Re Pastore*, performed at Faenza with great success. He held for a time the office of *Hof Kapellmeister* at Copenhagen, but returned to Italy 1765. In 1770 and following years, he composed his principal operas, including *Le gelosie villane* and *Giulio Sabino*, the latter enthusiastically received throughout Italy. In 1779 he became *maestro di capella* of the Duomo at Milan, and gave himself to composition of church music. In 1784 he went to St. Petersburg as music director of the court of Empress Catharine, by whom he was treated with great liberality, and raised to the highest rank of nobility. He died at Berlin, on his return to Italy. His operas are 30 in number; but the composition by which he is now most known is his beautiful sacred terzett, *Amplius Lava Me*. S. was musical instructor of Cherubini (q.v.).

SARTO, sâr'to, ANDREA DEL: one of the most famous painters of the Florentine school: 1487 (perhaps 1486)—1531, Jan. 22; b. Florence. According to most writers, the family name was Vannucchi, and Andrea only received the name *del Sarto* (the Tailor) from the occupation of his father: some modern writers question this. S. was pupil of Piero di Cosimo, but formed his style mainly through study of the works of Masaccio, Domenico Ghirlandajo, and Buonarrotti. These artists inspired him with a love of fresco-painting, in which he achieved great distinction. 1509–14. he executed a series of representations from the life of St. Filippo Benizzi, in the porch of the Annunziata at Florence; and in these the characteristics of his genius—dignity of composition, purity of form, freshness of color, and grace of expression—are seen at their

## SARTORIUS—SARUM.

best. In 1514 he commenced a series of frescoes from the life of John the Baptist, finished 12 years afterward. The finest works, of what may be called his middle period, are the *Madonna di San Francesco* and the *Contending Theologians*, both in the Florentine galleries. In 1518, Francis I. invited S. to Paris, where he painted, among other things, the picture of *Charity* in the Louvre; but at the solicitations of his wife, he returned to Florence, but with the promise exacted by the king that his absence should be short, and that he would bring with him works of art for his royal patron; for which purpose the king put funds in his hand. S., an easy-going and not very ambitious man, allowed himself to use the king's money in building himself a house in Florence; and though afterward he sought to regain the favor of Francis, his efforts were in vain. His marriage, 1512, to a very handsome widow, Lucrezia del Fede, whose face he constantly presents in his pictures, seems to have been little to his advantage. To his later years belong his *Piety*, his most celebrated fresco, the *Madonna del Sacco* (in the Annunziata at Florence), the *Madonna with Saints* (in the Berlin Museum), and the *Sacrifice of Abraham* (in the Dresden Gallery). His largest fresco is the *Lord's Supper*, in the old Abbey of San Salvi, near Florence.

SARTO, GIUSEPPE. See PIUS X.

SARTORIUS, n. *sár-tō'rī-üs* [L. *sartor* or *sartorem*, a tailor—from *sarcio*, I mend]: in *anat.*, the muscle of the thigh which enables the legs to be thrown across each other, or to be bent inward obliquely.

SARUM, *sā'rūm*, OLD: extinct city and borough of England, on a hill two m. n. of Salisbury, Wiltshire. It dated from the time of the Romans, by whom it was known as *Sorbiudunum*, and remained an important town under the Saxons. A Witenagemôte was held at Old S. 960; and here William the Conqueror assembled all the barons of his kingdom 1086. It was the seat of a bp. from the reign of William the Conqueror till 1220, when the cathedral was removed to New Sarum, now Salisbury (q. v.), and was followed by most of the inhabitants. In Henry VII.'s time it was almost wholly deserted, and has so continued till the present time. Some traces of walls and ramparts, and of its cathedral and castle, are still seen. Though without a single house or inhabitant, two members represented it in parliament, till, like many other rotten boroughs, it was disfranchised by the Reform Bill 1832.

SA'RUM, USE OF: one of the modifications of the Roman liturgy in use in England before the Reformation. The 'Sarum Use' was edited by Osmund, Bp. of Salisbury, 1087 (see SARUM, OLD): other 'uses' co-existed with it, as the use of York, of Hereford, of Exeter, etc., but the Sarum Use, as in Salisbury Cathedral, had at the beginning of the 16th c. come into general acceptance in s. England and in the English Pale in Ireland: see Massell's *Ancient Liturgy of the Church of England*, and the same author's *Monumenta Ritualia*.

## SARVĀSTIVĀDAS—SASKATCHEWAN.

SARVĀSTIVĀDAS, or SARVĀSTIVĀDINS [Skr., those who maintain the reality of all existence]: one of the four divisions of the *Vaibhāshika* system of Buddhism: its reputed founder was *Rāhula*, son of the Buddha Sākyamuni.—See C. F. Koeppen, *Die Religion des Buddha* (Berlin 1857).

SARZA, n. *sâr'zû* [Sp. *zarza*, a bramble]: another name for SARSAPARILLA, which see.

SARZANA, *sâr-dzâ'nâ*: city of n. Italy, province of Genoa, 8 m. e. of Spezia: a very ancient city, founded B.C. 176. The adjacent city of Luni having been sacked and destroyed by the Vandals and by the Normans, its inhabitants abandoned it, and took refuge in S., to which place they removed the episcopal see 1204. There are remains of the amphitheatre of Luni. The cathedral of S., 1200, is rich in paintings and marbles. There is also an ancient fortress built by the Pisans 1262. Pop. 5,000.

SASH, n. *sâsh* [O. It. *sesa*, a Persian turban: Pers. *shast*, a girdle worn by the Magi]: a loose belt, generally of silk, worn for ornament round the waist or over the shoulders. By some milit. officers a sash is worn over one shoulder as badge of distinction: V. to dress with a sash.

SASH, n. *sâsh* [F. *châssis*, the sliding-frame of a window; *châsse*, a kind of frame, a shrine—from L. *capsa*, a case or box]: framework in which the panes of a window are set, which is made to move up and down, generally on pulleys, or is hung as a door: V. to supply with sash-windows. SASH'ING, imp. SASHED, pp. *sâsh't*. SASH-FRAME, the frame in which sashes are fitted. SASH-WINDOW, a window fitted with sashes. SASH-LINE, the line by which a sash is suspended in a frame.

SASHOON, n. *sâsh'ôn* [etym. doubtful]: a soft leather pad placed inside a shoe to ease the pressure on a tender spot.

SA'SIN: see ANTELOPE.

SASINE, n. *sâ'zin* [F. *saisine*, possession of land—from *saisir*, to take possession—from mid. L. *sacîrë*, to seize (see SEIZE)]: in *Scotch law*, the act of giving legal possession of feudal property, or the written document by which that fact is proved; elsewhere the term is obsolete: see SEIZIN: INEFFIMENT.

SASKATCHEWAN, *sâs-kâch'é-wawn*: district of the N. W. Territories of Canada, defined 1882; bounded e. by Manitoba, s. by Assiniboia, w. by Alberta; 107,092 sq. m. in the basin of the great river S., whose two branches unite near the centre of the new territory. Pop. (1901), 25,679.

SASKATCH'EWAN RIVER: large and important river of Brit. N. America; drawing its waters from the Rocky Mountains, and formed by two head-streams—the South Branch or Bow river (which is considered the main upper S.), and the North Branch. The S. Branch issues from a lake about four m. long, fed by a glacier descending from a magnificent *mer de glace*, and by a group of springs. A

## SASSABY—SASSAFRAS.

few yards n. of this group of springs is another group, from which the N. Branch takes its rise; height above sea-level 6,347 ft.; lat.  $51^{\circ} 40' n.$ ; long.  $117^{\circ} 30' w.$  The S. Branch flows s.e. to its junction with the Belly river, long.  $111^{\circ} 40' w.$ , then n.e. to its junction with the N. Branch, long.  $105^{\circ} w.$  Fed mainly from the same glacier that feeds the S. Branch, the N. Branch flows n. past Mt. Murchison (15,789 ft. above sea-level, and one of the highest peaks of the Rocky Mountains), n. through Kutanie Plain, a fine prairie abounding in game, and then in a general e. direction to its confluence with the S. Branch. These two main branches are navigable—the N. Branch about two-thirds of its length. From long.  $105^{\circ} w.$ , the Saskatchewan flows e., into Lake Winnipeg. Length of main river, from the union of the N. and the S. Branches, 200 m. to Lake Winnipeg: of N. Branch, variously stated 550 to 830 m.; of S. Branch (very devious) about 900 m., according to some estimates. From this lake it flows n.e., under the name usually of Nelson river or Katchewan, and enters Hudson's Bay: see NELSON RIVER. Its basin has been estimated 432,000 sq. m. It flows through a country rich in coal and iron, with healthful climate, and comprising almost boundless plains suited to cultivation of grain. At the sources of the S. there are several easy practicable routes across the Rocky Mountains, especially the Vermilion Pass.

SASSABY, n. *săs'a-bi* [native name]: *Damalis lunatus*, the bastard hartebeest of the Cape Colonists. It stands  $4\frac{1}{2}$  ft. high, with strong crescentic horns, a foot in length, points directed inward. They are dark purple-brown above, changing to dusky yellow beneath. They live in herds from six to ten in flat or wooded districts, and their flesh makes excellent venison. Unlike many antelopes, which are almost independent of water, the S. needs to drink daily, so its presence is always a sign that water is near.

SASSAFRAS, n. *săs'să-frăs* [F. *sassafras*; Port. *sassafraz*; It. *sassafrasso*, sassafras—from L. *saxum*, a stone; *frango*, I break—so named as supposed to break the stone in the bladder]: root, wood, and flowers of an American tree.—The Sassafras (*Sassafras*) is a genus of trees or shrubs of nat. order *Lauraceæ*, having diœcious flowers with nine stamens. The S.-tree (*S. officinale*) of N. America, from Canada to Florida, a mere bush in the n., but a tree 50 ft. high in the s., has deciduous leaves, yellow flowers, which appear before the leaves, and small dark-blue fruit. The wood is soft, light, coarse in fibre, dirty-white and reddish-brown, with a strong but agreeable smell, resembling fennel, and an aromatic, rather pungent and sweetish taste. The wood of the root possesses these properties in higher degree than the stem, and the thick spongy bark of the root most of all. The wood is brought to market in the form of chips, but the bark of the root is preferred for medicinal use; it is a powerful stimulant, sudorific, and diuretic, and is employed in cutaneous diseases, gout, rheumatism, and syphilis, generally in combination with other medicines. It

## SASSAFRAS NUTS—SASSANIDÆ.

contains a volatile oil, *Oil of S.*, often used instead. An agreeable beverage is made by infusion of S. bark or S. wood; and a similar drink was formerly sold in the streets of London under the name *Saloop*. The leaves of S. contain so much mucilage that they are used for thickening soup.—Another species of S. (*S. parthenoxylon*), with similar properties, is found in Sumatra.

**SAS'AFRAS NUTS:** see PITCHURIM BEANS.

**SASSANAGE**, n. *săs'an-ÿj* [F. *sasser*, to sift]: stones left after sifting.

**SASSANIDÆ**, *săs-săn'ē-dē*, or **SASSAN'IANS** (also **SASAN'IDÆ**—**SASAN'IANS**): dynasty which succeeded that of the Arsacidæ on the throne of Persia (q.v.); named from Sassan, grandfather of the newly-elected monarch **ARDISHIR** (reigned 218–240). The reign of the S. is remarkable in the history of Persia, not for the extent of their sway, nor the magnificence of their court, though in these they could vie with the Achæmenidæ at the epoch of their greatest splendor, but for the intense energy which they infused into the people at large. A comparatively small army of Greeks could successfully strive against the immense hordes of Xerxes and Darius; but the veterans of Rome could gain few laurels in conflict with an equal Persian force under the S.—Ardishir made the desert of Khiva and the Tigris his boundaries, and resigned the throne to his son, **SHAHPUR I.** (**SAPOR**) (reigned 240–273), who subdued Armenia, took Algezira (258) and Nisibis, and totally routed the Romans at Edessa, taking prisoner Emperor Valerian and the relics of his army, and overrunning Syria, Cappadocia, and other portions of w. Asia. This monarch sought the prosperity of his subjects and the encouragement of the fine arts as well as the extension of his power; but his enlightened plans were not carried out by his immediate successors.—**NARSI** (**NARSES**) (reigned 294–303) retook Armenia, and signally defeated the Romans under Galerius; but fortune deserted him in the following year (297).—His grandson, **SHAHPUR II.** (reigned 310–381), surnamed **POSTHUMUS**, an infant, succeeded, and Persia, during his minority, was much harassed by the Arabs, Romans, and Tartars; but Shahpur had no sooner taken the reins of govt. than in return he ravaged Yemen, punished the Tartars, and took the sole revenge in his power against the Romans, by a dreadful persecution of the Christians in his dominions. A regular war speedily followed; the army of Constantius was routed at Singarah and he was compelled to sue for peace. But the war continued; Constantius's successor, Julian, was defeated, and lost his life (363) near Ctesiphon; and the Romans concluded the humiliating peace of Dura. Armenia, Iberia, and the other Caucasian principalities were then reduced by Shahpur.—Among his successors were **BAHARAM V.** (reigned 420–448), surnamed **GOUR**, who recommenced hostilities with the Romans, the result being a partition of Armenia and a truce for 100 years; and **KOBAD** (**COBADES** or **CABADES**) (reigned 488–498, 502–531), an able monarch, who, on the Romans refusing

## SASSARI—SASSOLINE.

to pay the stipulated tribute, declared war against them, and defeated them in every engagement, concluding peace (505) on receiving 11,000 lbs. of gold. A second war, which began 521, was in favor of the Persians throughout, though the Romans then had a staff of generals unsurpassed at any previous epoch. The war continued after the accession of KHOSRU I. (q.v.) (reigned 531–579), and at intervals till nearly the end of the century, when another great Persian conqueror, KHOSRU II. (q.v.) (reigned 591–628), ascended the throne: for details of his annihilation (for a time) of the Roman power in Asia, and the final resistless march of Heraclius, who again cooped up the Persians within the Tigris, and inflicted on the S. the blow from which they never recovered, see HERACLIUS.—After four years of petty civil war, which wore out the remaining strength of the nation, YESDIGERD III. (reigned 632–651) was raised to the throne. The Arabs, who had already twice attacked Persia without success, made a third attempt 639, and routed Yesdigerd's army at Kudseah (Cadesia) with immense loss. Yesdigerd made another energetic attempt to rescue his kingdom; but the great battle of Nahavend, in which more than 100,000 Persians are said to have been slain, extinguished all hope of success; and the unfortunate monarch became a fugitive in n. Khorasan till 651, when he was treacherously murdered.—Thus the dynasty which had pulled down the Romans from their proud pre-eminence among nations perished by the hands of a horde of robber-fanatics, under whose barbarous Mohammedan rule the extensive commercial prosperity and refined civilization which had been so carefully fostered for four centuries, were utterly swept away, leaving only such traces as ruined aqueducts, choked-up canals, and the still magnificent remains of almost forgotten cities.

SASSARI, *sâs'sâ-rê*: city in the n.w. of the island of Sardinia, chief town of the province of Sassari; 8 m. from the shore of the Gulf of Asinara. It is a handsome and important archiepiscopal city, and has a vast cathedral, with many sculptures, one by Canova; a univ. founded 1776; a college; and a rich library, with the MSS. of the Azuni. S. is a very busy and growing town, trading especially in grain, wine, fruits, wool, olive oil, and tobacco. Its harbor, Torres, is 10 m. n.w. of S.; it is narrow and shallow, admitting only small vessels. Pop. (1881) 31,596; (1885) 38,000; (1901) 38,268.

SASSENACH, n. *sâs'sen-âk* [Gael. *sasunnach*, an Englishman—a corruption of *Saxon*]: a name applied by the early Kelts and Britons, and subsequently by the Picts and Irish Scots, to the Saxon invaders of Britain; an Englishman. *Note*.—The *ch* in Scotch is guttural.

SASSOLINE, or SASSOLIN, n. *sâs'sô-lîn* [from *Sasso*, near Sienna, where first known at the hot springs: F. *sassolin*]: in min., a term for *boracic acid*, which occurs in thin, scaly, irregular, six-sided crystals, of a whitish color, pearly lustre, and less or more translucent, found with various impurities in many volcanic regions.

## SASTRA--SATELLITES.

SASTRA, n. *sāś'trā*, or SHASTRA, n. *shāś'trā*, and SHASTER, n. *shāś'tér* [Hind. *shastr* or *shastra*—from *shas*, to govern]: among the Hindus, the sacred books containing the institutes of their religion; the six great *sastras*, containing, according to the Hindus, all knowledge human and divine, are the *Vedas*, the *Upavedas*, the *Vedanta*, the *Upanigas*, including the *Puranas* and the *Dharmashastra*.

SAT: pt. of SIT, which see.

SATALIAH, *sát-á'lé-á*: another name of Adalia (q.v.).

SATAN, n. *sā'tán* [Heb. *satan*, an adversary or enemy: Gr. *satan*]: the Evil One; chief of the fallen angels; the Devil (q.v.). SATANIC, a. *sá-tán'ik*, or SATAN'ICAL, a. *-i-kál*, pertaining to or resembling Satan; infernal; devilish. SATAN'ICALLY, ad. *-lý*.

SATARA, *sá-tá'rá*, generally spelled *Sattarah*, *sót-tá'rá*: collectorate in the s. division of the province of Bombay, Brit. India; bounded n. by the state of Poona, w. by the lofty ridge of the W. Ghauts; 5,371 sq.m. SATARA, the cap., from which the state derives its name, is one of the most salubrious and pleasant stations in the Deccan, 133 m. s.e. of Bombay (pop. 29,000). Pop. of collectorate (1881), 1,062,350.

SATCHEL, n. *sách'él* [OF. *sachel*, a little bag—from L. *sacellus*, a small bag, a purse; *saccus*, a bag: Dut. *sackel*; Ger. *säckel*, a purse]: a bag in which to carry papers books, etc.; a small travelling-bag; also spelt SACHEL.

SATE, v. *sát* [a contracted form of satiate: L. *satíäré*, to satisfy—from *satis*, enough]: to satisfy the appetite: to glut; to surfeit; to feed beyond natural desire. SA'TING, imp. SA'TED, pp.

SATEEN, n. *sát-én'*: a kind of glossy fabric, made in imitation of satin, but having a woolen or cotton material.

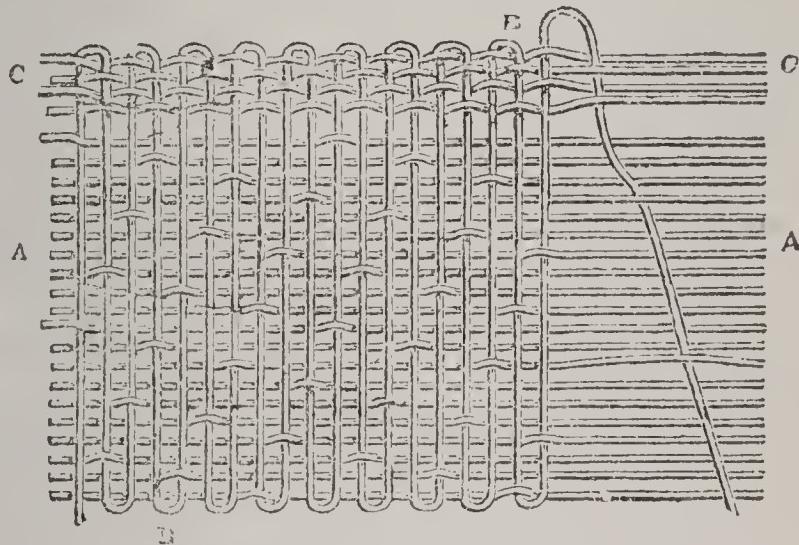
SATELLITE, n. *sát'él-lít* [F. *satellite*, a satellite—from L. *satelles* or *satel'litem*, an attendant]: that which attends or accompanies; a small planet which revolves round a large one; an obsequious attendant and hanger-on.

SATELLITES, in Astronomy: celestial bodies which attend upon and revolve round some of the planets, as these latter revolve round the sun; hence scientific men frequently apply to them the generic term, ‘secondary planets.’ The Earth, Mars, Jupiter, Saturn, Uranus, and Neptune, each possesses one or more of these attendants. The eclipses, inequalities, inclinations, and reciprocal attractions of the S., have been carefully noted from time to time, and the theory of their motions, at least of the most prominent of them, has been found to coincide with that of the moon. The S. of Jupiter are invested with additional interest, from their eclipses having been the means of directing Römer to his great discovery of the successive propagation and velocity of light. On careful investigation, he found that the eclipses regularly happened 16' 26" earlier when the planet was in opposition (i.e., nearest the earth), than when it was in conjunction (i.e., furthest from the earth), a phenomenon which could be accounted for only by the supposition, that light requires 16' 26" to pass over a distance equal to the diameter of the Earth’s orbit.

## SATIATE—SATIN.

SATIATE, v. *sā'shī-āt* [L. *satiātus*, filled, satiated; *satiārē*, to satiate—from *satis*, enough]: to gratify fully either appetite or desire; to fill beyond want or natural desire; to glut; to surfeit. SATIATING, imp. SATIATED, pp. glutted. SATIABLE, a. -ābi, that may be appeased or gratified. SATIABLY, ad. -bli. SATIETY, n. *sā-tī'ē-tī* [F. *satiété*—from L. *satiētētem*, satiety]: fulness of gratification beyond desire or pleasure; surfeit; repletion.—SYN. of ‘satiate’: to cloy; gorge; surfeit; glut; overfill; satisfy; suffice; sate; fill; pall; gratify; saturate.

SATIN, n. *sātīn* [F. *satin*; Port. *setim*, satin—from mid. L. *setinus*, *satinus*, satin—from L. *sēta*, a bristle]: a glossy silk cloth: a fabric in which so much of the weft is brought uppermost in the weaving as to give a more lustrous and unbroken surface to the cloth than when the warp and weft cross each other more frequently. In the figure, A are the warp threads, of which only every tenth one is raised to allow the shuttle to pass, but they all are raised in regular succession, so that the weaving is uniform throughout; B are the weft threads; C is the selvedge, formed on each



side of the piece of stuff by the regular method of plain-weaving, that is, by raising every other warp thread for the passage of the weft. The term satin is very rarely applied to any other than silk fabrics, woven as described; but there are woolen, linen, and cotton satins known in the markets. SATIN-DE-LAINE, n. black cassimere manufactured in Silesia from wool. SATINET, n. -i-n̄t, a thin inferior kind of satin: also a kind of cloth woven with cotton warp and woolen weft. SATIN-JEAN, n. twilled cotton fabric, having a smooth, satiny surface. SATINY, a. -in-i, resembling satin. SATIN-BIRD (see BOWER-BIRD). SATIN-SPAR, a mineral, a fibrous kind of carbonate of lime, having a silky appearance when polished. SATIN-STONE (see SATIN-SPAR). SATIN-TURK, n. trade name for a superior quality of satinet.

## SATIN-WOOD—SATIRE.

**SATIN-WOOD:** beautiful ornamental wood obtained from both the W. and E. Indies. The former is the better kind, and is supposed to be the product of a moderate-sized tree, *Ferolia Guianensis*, and probably of other species, as there are several varieties of the wood. That from the E. Indies is less white in color, and is produced by *Chloroxylon Sweitenia*. Both are much used by cabinet-makers, and for marquetry, etc. The logs are usually only 6 or 7 inches square.

*Chloroxylon Sweitenia* is a tree of nat. order *Cedrelaceæ*, growing on the mountains of the Circars in India, and in Ceylon. Sir James E. Tennent says that ‘in point of size and durability, it is by far the first of the timber-trees of Ceylon. The richly-colored and feathery logs are used for cabinet-work, and the more ordinary for building purposes, every house in the eastern province being floored and timbered with satin-wood.’—Tennent’s *Ceylon*.

**SATIRE**, n. *săt’ir* [F. *satire*, satire—from L. *satūra*, *satūra*, a satire; *satūra*, originally a plate filled with various kinds of fruit, hence a medley, olio, satire—from *sătur*, full]: written composition in which vice and folly are exposed to scorn and contempt (see below); keenness and severity of remark; sarcasm. **SATIRIC**, a. *să-tir’ik*, or **SATIRICAL**, a. *-i-kăl*, conveying or containing satire; sarcastic or cutting in language. **SATIRICALLY**, ad. *-li*. **SATIRIZE**, v. *săt’er-īz*, to censure with keenness or severity. **SATIRIZING**, imp. **SATIRIZED**, pp. *-īzd*. **SATIRIST**, n. *-ist*, one who writes satire.—SYN. of ‘satire’: sarcasm; irony; lampoon; burlesque; pasquinade; wit; humor; ridicule; parody; travesty; caricature; comedy;—of ‘satirical’: cutting; severe; abusive; sarcastic; ironical; bitter; poignant; reproachful; censorious.

**SATIRE:** name given by the Romans to a species of poetry of which they may be considered inventors. The word *satura* (from the root *sat*, enough) is strictly and originally an adjective, meaning ‘full’ or ‘filled;’ but afterward it came to possess also a substantive signification, and denoted a dish filled with a medley of ingredients, like the *Pot-pourri* (q.v.) of the French, or the *Olla-podrida* (see *OLLA*) of the Spaniards. Hence, in its figurative application to a branch of literature, it throws a light on the primary character of that literature. The oldest Roman S. was a medley of scenic or dramatic improvisations in varying metres (Livy, lib. 7, cap. 2), like the Fescennine Verses (q.v.); but the sharp banter and rude jocularity of these unwritten effusions bore little resemblance, either in form or spirit, to the earnest and acrimonious criticism that formed the essential characteristic of the later S. The earliest—so far as we know—who wrote *saturæ*, were Ennius (q.v.) and Pacuvius; but the metrical miscellanies of these authors were little more than serious and prosaic descriptions, or didactic homilies and dialogues. Lucilius (B.C. 148–103) is universally admitted to be the first who handled men and manners in that peculiar style which has ever since been recognized as the satirical: and the particular glory of

## SATIRE.

Lucilius, in a literary view, was that he created a special kind of poetry, which in all subsequent ages has been the terror and aversion of fools and knaves. The serious, and even saturnine gravity of the Roman mind must have readily disposed it to a censorious view of public and private vices. After the death of Lucilius, S., as well as other forms of literature, languished, and we meet no satirist of note till the age of Horace (q.v.), whose writings are as a glass in which we behold mirrored the tastes and habits of the Augustan age. His S., though sharp enough at times, is in the main humorous and playful. It is different when we come to Juvenal (q.v.)—a century later, when S. became a *sæva indignatio*, a savage onslaught on the tremendous vices of the capital. Persius (q.v.), who lived in the generation before Juvenal, is every way inferior in genius to the latter. After Juvenal, we have no professed satirist, but several writers, prose and poetic, in whom the satiric element is found, of whom Martial the epigrammatist is perhaps the most notable.

During the middle ages, the satirical element showed itself abundantly in the general literature of France, Italy, Germany, England, and Scotland. Men who have a claim to the character of satirists, *par excellence*, are Ulrich von Hutten, one of the authors of the *Epistole Obscurorum Virorum* (q.v.), Erasmus (q.v.), Rabelais (q.v.), Sir David Lindsay (q.v.), George Buchanan (q.v.). In all of these writers, priests are the special objects of attack; their vices, their greed, their folly, their ignorance, are lashed with a fierce rage. But it was in France that S. as a formal literary imitation of antiquity first appeared in modern times. Vauquelin (q.v.) may be considered the true founder of modern French S. The satirical verses of Mottin, of Sigogne, and of Berthelot, of Mathurin Regnier, *L'Espadon Satirique* of Fourqueriaux, and *Le Parnasse Satirique*, attributed to Théophile Viaud, are very impure in expression, and remind us that at this time a S. was understood to be an obscene work—the 17th c. scholars supposing that the name had something to do with Satyr, and that the style ought to be conformed to what might be thought appropriate to the lascivious deities of ancient Greece. During the 17th and 18th c., both England and France produced professed satirists of the first rank, who have not been surpassed by the best either of their predecessors or successors. The names of Dryden (q.v.), Butler (q.v.), Pope (q.v.), and Churchill (q.v.) on one side of the Channel, of Boileau (q.v.) and Voltaire (q.v.) on the other, are well known. Dr. Edward Young (q.v.) and Dr. Johnson (q.v.) also have made a name for themselves in this branch of literature. It was a distinguishing characteristic of Dryden, Boileau, Young, Pope, Churchill, and Johnson, and a mark of the difference of the times in which they lived from those of the satirists of the Reformation, that it is no longer the church that is assailed, but society, political opponents, literary rivals, etc.; the war is carried on, not so much against bad morals in the clergy, as against the common vices of men in general, or

## SATIRE.

it is even the expression of partisan hatreds. Swift (q.v.) and Arbuthnot (q.v.) are perhaps as great satirists as any above mentioned.

S. in the form of political squibs, lampoons, &c., is abundant in the 17th and 18th c. Butler's *Hudibras* is simply one long lampoon against the Puritans; most of the playwrights of the Restoration were royalist satirists—unscrupulous and indecent partisans. Dryden himself was *facile princeps* of the herd. Andrew Marvell (q.v.) is the most famous name on the side of liberty. The *Beggar's Opera* of the poet Gray is a piece of very fine political S. Gifford (q.v.), and Wolcot (q.v.), better known as Peter Pindar, also deserve mention, though their intrinsic merits are small. Incomparably superior to all their contemporaries, and among the first order of satirists, are Robert Burns (q.v.) and Cowper (q.v.).—Meanwhile, in France, since Voltaire, no great name has appeared, except, perhaps, that of Béranger (q.v.), though the spirit of S. has pervaded most of the current literature, particularly political literature. In Germany, the most conspicuous modern names are those of Hagedorn, Rabener, Sturz, Stolberg (q.v.), Kästner, Wieland (q.v.), Tieck (q.v.), and Goethe (q.v.); but none of these have adhered very strictly to the classic models of S. Of 19th c. satirists in England, the best names are Byron (q.v.), the brothers Smith (q.v.) and Hood (q.v.), in poetry; and Hook (q.v.), Jerrold (q.v.), Thackeray (q.v.), and Carlyle, (q.v.), in prose. In the United States there have been many satirists of minor rank, and the name of the author of the *Biglow Papers*, James Russell Lowell, is among the most eminent of modern satirists.—In journalistic and pictorial satire London *Punch* has led a numerous line of followers.—See Sellar's *Roman Poets of the Republic* (2d ed. 1881); Browne's *History of Roman Classical Literature* (Lond. 1853); Thomson's *History of Roman Literature* (a vol. of the *Encyclopædia Metropolitana*); Mommsen's *History of Rome*; Niebuhr's *Lectures on Roman History*; M. Viollet le Duc, article 'Satire' in *Dictionnaire de la Conversation*; and James Hannay's *Satire and Satirists*.

## SATISFY—SATSUMA.

SATISFY, v. *săt'is-fî* [OF. *satisfier*, to satisfy—from L. *satisfacēre*, to satisfy—from *satis*, enough; *faciō*, I make: F. *satisfaire*: Sp. *satisfacer*]: to afford full gratification to; to supply fully; to pay all claims to the full extent; to appease by punishment; to convince; to give content; to release from suspense. SATISFYING, imp. SATISFIED, pp.-*fîl*. SATISFIER, n. -*fî-ér*, one who gives satisfaction. SATISFACTION, n. -*făk'shün* [F.—L.]: the act of satisfying; the condition of mind resulting from full gratification of desire, or from release from suspense or doubt; amends; atonement; recompense; the settlement of a claim; the satisfying of one's honor by means of a duel; payment. SATISFACTORY, a. -*tér-î*, yielding content; gratifying; causing conviction. SATISFACTORILY, ad. -*î-lî*. SATISFACTORINESS, n. -*nës*, the quality or condition of being satisfactory. SATISFYINGLY, ad. -*lî*, in a manner tending to satisfy.—SYN. of ‘satisfaction’: compensation; recompense; amends; contentment; gratification; pleasure; content; remuneration; requital; reward; meed; guerdon; indemnification; atonement;—of ‘satisfy’: to gratify; humor; indulge; please; satiate; glut; cloy; content; sate.

SATOLLI, *sâ-tol'lë*, FRANCIS, cardinal: 1839, July 21— ; b. Marciano, Italy. Joachim Pecci, abp. of Perugia (now Leo XIII.), directed his education for the church, and after ascending the papal throne chose him as assistant in promoting theological study. S. was prof. in the urban col. of the Propaganda at Rome, and in 1888 was made abp. of Lepanto; represented the pope at the opening of the Cath. Univ. of America, at the Rom. Cath. congress, and at the Baltimore diocesan centennial 1889; and 1892 was appointed apostolic delegate to the U. S. with pontifical power. In 1896 he was made cardinal, and was succeeded as apostolic delegate by Mgr. Martinelli (q.v.).

SA'TRAP, n. *sâ'trăp* [F. *satrape*—from L. and Gr. *satrapēs*, the governor of a province—originally a Persian word]: in the ancient Persian monarchy, the governor of a province, whose power—so long as he kept the favor of the king—was almost absolute. He levied taxes at his pleasure, and could ape the tyranny of his great master without hindrance. When the monarchy of Cyrus began to decline, some of the satraps threw off their slight allegiance, and founded independent kingdoms or sultanates of their own, the most famous of which in ancient times was the Mithridatic kingdom of Pontus (see PONTUS: MITHRIDATES). SATRAPAL, a. *sâ'tră-păl*, pert. to a satrap. SA'TRACY, n. -*pă*, the government of a satrap.

SATSUMA, *sât-sô'mâ*: province of the island of Kiushiu, in the s. part of Japan. In early feudal times the lords held a large part of Kiushiu, but their territory was greatly reduced in the 16th c., though early in the 17th c. they secured control of the Loo Choo Islands. The people have had many able leaders and have long been noted for knowledge and zeal in military matters, and for their opposition to govt. usurpations. The efforts of the govt. to suppress the attempts of the more advanced leaders in

## SATTEEN—SATTERTHWAITE.

S. to introduce Western civilization led indirectly to the difficulty with Gt. Britain 1863, and to the great revolution of 1868. The people of S. were prominent in the movement which led to the overthrow of the feudal system 1872, and they led in the rebellion of 1877, which was caused by the course of the rulers in regard to the Corean troubles, and by dissatisfaction with their management of domestic affairs. S. has more readily adopted foreign customs, and has sent abroad more students to be educated, than any other province of Japan. The country is mountainous, and the soil is of only moderate fertility; but there is great mineral wealth, manufactures are flourishing, and there is an extensive and profitable commerce. The famous decorated pottery known as Satsuma ware has nearly all been made by Coreans, many of whom were prisoners.

SATTEEN, n. : see SATEEN.

SATTERTHWAITE, *săt'ér-thwät*, THOMAS EDWARD, M.D. : born Spuyten Duyvel, N. Y., 1843, Mar. 26. He graduated from Yale College 1864, studied medicine in New York, was a surgeon in the Franco-German war, and was afterward connected with St. Luke's Hospital and the Presbyterian Hospital in New York. He has written important papers for medical publications, and 1876 received a prize from the College of Physicians and Surgeons for an essay *On the Structure and Development of Connective Substances*.

## SATURATE—SATURN.

**SATURATE**, v. *săt'ü-răt* [L. *satūrātus*, glutted, satiated *satūrārē*, to glut—from *sătūr*, full or filled: It. *saturare*; F. *saturer*]: to supply or add to fulness; to impregnate with till no more can be received. **SAT'URATING**, imp. **SAT'URATED**, pp. **SAT'URABLE**, a. *-ră-bl*, that may be saturated. **SAT'URANT**, a. *-rănt*, impregnating to the full: N. a substance which neutralizes the acid in the stomach. **SAT'URA'TION**, n. *-ră'shün* [F.—L.]: the condition of a body in which it has received as much of another substance as it can contain or dissolve.

**SATURDAY**, n. *săt'ér-dă* [A.S. *Sæter-dæg*, Sæter's day, Saturday—from *Sæter*, one of the Norse deities equivalent to Saturn; *dæg*, a day: Dut. *zaturdag*]: seventh or last day of the week, coincident with the sabbath day of the Jews; hence the 7th day is still in the Roman calendar. *Dies Sabbati* (sabbath day), and the meaning of the German name of the day is the same: *Samstag* = sambattag (sambat = sabbat). See **SABBATH**.

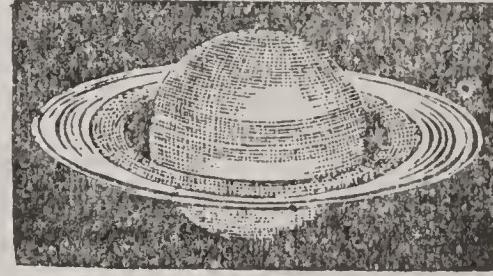
**SATURN**, n. *săt'érn* [L. *Satur'nus*, Saturn]: in *anc. myth.*, one of the oldest and chief gods, under whom the golden age was supposed to have existed (see below).

—Also one of the planets, next in magnitude to Jupiter (see **PLANETS**): in *her.*, the black color in the arms of sovereign princes. **SATURNALIA**, n. *săt'ér-nă'lī-ă*, in *anc. Rome*, the annual festival of Saturn—a period of

unrestrained revelry for all classes, even slaves (see below).

**SAT'URNA'LIAN**, a. *-än*, free; loose; dissolute. **SATURNIAN**, a. *să-tér'ní-än*, pertaining to Saturn or the golden age; happy; pure. **SATURNINE**, a. *săt'ér-nín*, under the influence of the planet Saturn; dull; gloomy; phlegmatic. **SATURNINE-PALSY**, n. *săt'ér-nín*: in *pathol.*, lead palsy produced by the inhalation of lead particles. **SAT'URNIST**, n. *-nist*, a person of a dull grave temperament. **SATURNUS**, n. *sa-tér'nüs* [L.]: Saturn.

Saturn.



**SATURN**, n.: in *old chem.*, name applied to lead.

**SATURN**, *săt'érn*: ancient Italian divinity, who presided over agriculture. His name, from the same root as *satum* [*sero*, to sow], indicates what was probably one of the earliest personifications in the Italian religion, S. being the god who blessed the labors of the sower. His (till recently universal) identification with the Greek KRONOS in accordance with the later Greecizing myth-mongers, is a peculiarly infelicitous blunder, and has led to great confusion. The Greek *Demeter* (Ceres), it has been observed, approaches far more closely to the Italian conception of the character of S. The process of amalgamation in the case of Kronos and S. is visible enough. First, there is the Greek myth. Kronos, son of Uranos (Heaven) and Gaea (Earth), is there the youngest of the Titans He

## SATURN.

married Rhea, by whom he had several children, all of whom he devoured at birth except the last, Zeus (Jupiter), whom his mother saved by a stratagem. The motive of Kronos for this horrible conduct was his hope of frustrating a prophecy which declared that his children would one day deprive him of his sovereignty, as he himself had done in the case of his father Uranos; but fate is stronger even than the gods, and when Zeus had grown up, he began a great war against Kronos and the Titans, which lasted ten years, and ended in the complete discomfiture of the latter, who were hurled down to Tartarus, and there imprisoned. So ran the common myth. But other myths added that, after his banishment from heaven, Kronos fled to Italy, where he was received hospitably by



Saturn.—Raphael.

**Janus**, who shared his sovereignty with him. At this point the Greek myth coalesced with the Italian. S., the old homely deity of the Latin husbandmen, was transformed into a divine king, who ruled the happy aborigines of the Italian peninsula with paternal mildness and beneficence, taught them agriculture and the usages of a simple and innocent civilization, and softened the primitive roughness of their manners. Hence the whole land received from him the name of *Saturnia*, or ‘land of plenty.’ His reign was that ‘golden age’ of which later poets sang as the ideal of earthly happiness, and in memory of which the famous *Saturnalia* (q.v.) were thought to have been instituted. At the foot of the Capitoline, where the fugitive god had formed his first settlement, there stood in historical times a temple dedicated to his worship. According to the old legends, human sacrifices were sometimes offered to him. Ancient artists represented him as an old man, with long, straight hair; the back of his head covered, his feet swathed in woolen ribbons, a pruning-knife or sickle-shaped harp in his hand. Other attributes, as the scythe, serpent, wings, etc., are of later invention,

## SATURN—SATURNALIA.

**SATURN**: sixth of the planets in the order of distance from the sun: for general view of S., see PLANETS.—The rings of S. are streams of satellites relatively minute. These rings may be broadly divided into three, the exterior ring separated from the middle one by a space free from the satellite streams, while the inmost ring and the middle seem to be in contact. The rings differ greatly in brightness: the middle ring is more luminous than the planet itself; the inmost ring is of dusky-purple tinge; the outermost of grayish tinge. Both the outermost and the middle rings are opaque; the inmost ring is transparent. The outermost ring has an exterior diameter of 173,500 m., and an interior diameter of 153,500: hence its breadth is 10,000 m. The breadth of the middle ring is 10,150 m., and of the inmost ring 18,300 m. The thickness of the ring system is probably not more than 100 m. When the position of S. brings the plane of the ring to pass through the centre of the sun, the edge only—100 m. thick—is illuminated: at the distance of the planet from the earth, that thickness would present to the eye a line of light visible only by the aid of the best telescopes—a line equal in diameter to the diameter of a pinhead at the distance of two miles. But the ring entirely disappears from our view whenever its planet passes between the earth and the sun, the unillumined side of the ring being then presented to us.

**SATURNALIA**, *sūt-ér-nā'lī-a*: ancient Italian festival, instituted, according to the common belief of the ancients, in memory of the happy reign of Saturn (q.v.). Discarding all mythical explanations of the institution of the S. as simply incredible, and not worth refutation, we may rationally conjecture that the S. was a rural festival of the old Italian husbandmen, commemorative of the ingathering of the harvest, or more probably in celebration of the winter solstice—therefore in either case of immemorial antiquity. It is not, we conceive, to be doubted for a moment that the untrammelled jollities of the S. were familiar to the farmers of Latium long before their homely national god, who blessed the labors of seed-time with abundant fruit, had been decorated with incongruous Hellenic honors, and transformed into a skyey Titan. Later ages may have introduced novel elements into the S., befitting the hybrid myth of King Saturn; but it may well be believed that, originally, the cessation from toil, and the wild self-abandoning mirth that marked the feast, were expressive of the laboring man's delight that the work of the year was over, and not of an artificial enthusiasm for a 'golden age' that never had been. The great feature of the S., as a festival in historical times, was the temporary dissolution of the ordinary conditions of ancient society. The distinctions of rank disappeared or were reversed. Slaves were permitted to wear the *pileus*, or badge of freedom, and sat down to banquets in their master's clothes, while the latter waited on them at table. Crowds of people filled the streets, and roamed about the city in a peculiar dress, shouting *Io Saturnalia*; sacrifices were

## SATURNIAN VERSE.

offered with uncovered head; friends sent presents to each other; all business was suspended; the law-courts were closed; school-boys got a holiday; and no war could be begun. During the Republic, the S. proper occupied only one day—Dec. 19 (xiv. Kal. Jan.). The reformation of the calendar by Julius Cæsar caused the festival to fall on Dec. 17 (xvi. Kal. Jan.), a change which produced much confusion, in consequence of which Emperor Augustus ordained that the S. should comprise the three days of Dec. 17, 18, 19. Subsequently the number was extended to five, and even seven; though even in the times before the Empire, the amusements often appear to have lasted several days. But while the whole week was regarded in a general sense as devoted to the S., three distinct festivals were really celebrated—the S. proper; the *Opalia*, in honor of *Ops*, wife of Saturn, and goddess of field-labor [from *opus*, a work]; and the *Sigillaria*, in which *sigilla*, or little earthenware figures, were exposed for sale, and purchased as children's toys. The modern Italian Carnival (q.v.) seems to be only the old pagan S. baptized into Christianity.

SATUR'NIAN VERSE: name given by the Romans to that species of verse in which their oldest poetical compositions, particularly the oldest national poetry, were composed. In the usage of the later poets and grammarians, the phrase has two different significations. It is applied in a general way to denote the rude and unfixed measures of the ancient Latin ballad and song; and perhaps derived its name from being originally employed by the Latin husbandmen in their harvest-songs in honor of the god Saturn (q.v.). In this sense, it simply means *old-fashioned*, and is not intended to determine the character of the meter. It is applied also to the measure used by Nævius, and a common opinion, sanctioned by the great name of Bentley, is, that it was a Greek meter introduced by him into Italy. But though the S. V. is found among the measures employed by Archilochus, scholars generally incline to the opinion that this is an accidental coincidence, that the measure of Nævius is of Italian (Hermann thinks even of Etruscan) origin, and that it merely improved on the older ballad-meter—the primitive S. V. It continued in use till the time of Ennius (q.v.), who introduced the Hexameter (q.v.). According to Hermann, the basis of the verse is contained in the following *schema*:



which, as Macaulay happily points out, corresponds exactly to the nursery rhyme,

The queén was in her párlor | éating bréad and hóney,  
and is frequently found in the Spanish poem of the *Cid*,  
the *Nibelungen Lied*, and almost all specimens of early  
poetry; but in the treatment of it a wide and arbitrary  
freedom was taken by the old Roman poets, as is proved  
by still extant fragments.—See *History of Roman Liter-  
ature*, by Thompson, Arnold, Newman, etc. (Encyclo-

## SATYR—SAUCE.

*pædia Metropolitana*, 1852); Browne's *History of Classical Roman Literature* (1853); Niebuhr's *History of Rome*; Preface to Macaulay's *Lays of Ancient Rome*; and Sellar's *Roman Poets of the Republic* (1863, new ed. 1881).

**SATYR**, n. *săt'ér* [L. *sat'yrus*: Gr. *sat'ūros*, a satyr], in Greek Mythology: one of a race of sylvan and minor deities, mentioned first by Hesiod, who designates them ‘the race of worthless satyrs unfit for work.’ Subsequently they figure in great numbers in the train of Dionysus (Bacchus)—their leader being that model of tipsy revellers, the never-sober Silenus. In appearance they were grotesque and repulsive, like all old woodland demons. They are described as robust in frame, with broad snub noses, large pointed ears like those of animals (whence they are sometimes called *theres*, ‘wild beasts’), bristly and shaggy hair, rough skin, little horny knobs on their foreheads, and small tails. The satyrs are of course sensual in their inclinations, and ravishers of the woodland nymphs, fond of music, dancing, wine, and of the deep slumbers that follow a debauch. The Roman poets identified them with the *Fauni* of their own mythology, and gave them larger horns and those goats’ feet with which they are so often represented. Ancient sculpture was fond of the satyr as a ‘subject’—one of the most famous specimens being the satyr of Praxiteles (q.v.), though in this the more ancient savage repulsiveness is toned down by something of youthful grace.—The S. of the authorized version in Is. xiii. 21, xxxiv. 14 [Heb. ‘hairy one’], denotes a supposed shaggy demon, gloomy and terrible, inhabiting waste places. The same word is in Lev. xvii. 7.

**SATYRIC**, a. *să-tir'ik*, or **SATYRIAN**, a. *-i-ān*, of or relating to satyrs, as the *satyric* drama of the Greeks.

**SATYRIASIS**, n. *săt'i-rī'ā-sis* [Gr.]: lecherous madness in males; satyr-like lasciviousness; insane or ungovernable sway of the lowest instincts and propensities, by which man becomes an animal in its savage and excited state. The ancients were acquainted with this loathsome form of alienation, in which man recognizes no hindrance to the promptings of any appetite; and it has not become entirely unknown—appearing in very rare cases at puberty and in dotage; but its growing rarity indicates the advance of Christian civilization in the subjection of natural propensities to the higher sentiments.—Mason Good, *Study of Medicine*, V. 124; Sauvages, II. 214.

**SAUCE**, n. *saws* [F. *sauce*—from It. and mid. L. *salsa*, a mixture of salt and spices, any relishing addition to food—from L. *salsus*, salted; *sal*, salt]: a liquid mixture to be eaten as a condiment or seasoning for food, in use from the earliest times of culinary art; anything that stimulates the palate: *familiarly*, insolence; pertness; petulance: V. to season or eat with sauce; to treat with pertness. **SAUCING**, imp. **SAUCED**, pp. *sawst*. **SAUCER**, n. *saw'sér* [F. *saucière*, a saucer—from mid. L. *salsarium*]: a little dish to hold sauce; a shallow piece of earthenware in which a cup is set. **SAUCY**, a. *-sī*, rude; impertinent; disrespectful; petulant; care-for-nobody. **SAUCILY**, ad. *-sī-lī*. **SAUCINESS**, n. *-nēs*,

## SAUCH—SAUGOR.

the quality of being saucy; impertinent boldness. SAUCE BOATS and TUREENS, small earthenware vessels for holding sauces and gravies. SAUCEPAN, an iron cooking utensil with projecting handle. To SERVE ONE WITH THE SAME SAUCE, to retaliate one injury with another.—SYN. of ‘sauciness’: rudeness; impertinence; impudence; insolence; audacity; petulance.

SAUCH, or SAUGH, n. *sawč* [Sw. *sälg*; OF. *saulg*; L. *salix* or *salicem*, the willow]: in *Scot.*, the willow; also applied to the sallow, which see.

SAUCISSE, n. *sō-sis'*, or SAUCISSON, n. *sō-sis'ōng* [F. *saucisse*, a sausage (see SAUSAGE)]: in *mil.*, long pipe or tube of pitched cloth or leather an inch or more in diameter filled with gunpowder, and used for firing a mine; one end is laid in the mine to be exploded, the other is conducted through the galleries to a place where the engineers can safely fire it. Electricity is now preferred. See BLASTING. S. is also an unusually long bundle of fagots, for keeping up the earth in erection of batteries, etc.

SAUCY: see under SAUCE.

SAUERKRAUT, n. *sowr'krowt* [Ger. *sauer*, sour; *kraut*, a vegetable, cabbage]: preparation of the common white cabbage, in extensive use in Germany and n. Europe, where it supplies during the winter the place of fresh vegetables. The cabbages are gathered when they have formed firm white hearts: these, sliced into thin shreds, are placed in a succession of thin layers in a cask, each layer sprinkled with fine salt, to which some add juniper berries, cumin seed, caraway seeds, or other condiment. A board is then placed on the top, with a heavy weight, pressing the whole down firmly, but gently. After a time, fermentation begins; and when a sour smell arises from the cask, it must be removed into a cool place, and kept for use. It is generally eaten boiled, in the same way as fresh cabbage. To unaccustomed nostrils its odor is offensive.

SAUGERTIES, *saw'ghér-tēz*: village in S. tp., Ulster co., N. Y.; on the Hudson river, where it receives Esopus creek, and opposite Tivoli, with which it is connected by a steam ferry; and on the West Shore railroad, 12 m. above Kingston, 100 m. from New York. It has 7 churches, an institute and good public schools, one daily and one weekly newspaper, two banks, and large manufactures, including paper and iron. The water-power is abundant, there are quarries of fine limestone in the vicinity, and small fruits are shipped from this point to city markets. Pop. of village (1880) 3,923; (1890) 4,238; (1900) 3,697.

SAUGOR, *saw'ger*: town of India, chief town of a dist. in the Central Provinces; in a hilly tract, on the Bees, or Bes, a feeder of the Jumna; lat.  $23^{\circ} 50' n.$ , long.  $78^{\circ} 49' e.$  S. is the seat of a milit. cantonment and of a collegiate school. The elevation is so considerable that the climate is moderately cool; but the cantonment is in a swampy, unhealthful situation. Pop. (1881) 44,416; (1891) dist. 441,674.

## SAUL—SAULT STE. MARIE.

**SAUL**, *sawl*: first King of Israel (reigned about B.C. 1096–1056); d. B.C. 1056; son of Kish, a wealthy chief of the tribe of Benjamin. For the events of his life from his election to the royal dignity, see I Sam. x–xxxii.: also **DAVID**; **SAMUEL**; **JEWS**. Gigantic in stature, noble in mien, and imperious in character, he appeared admirably fitted to accomplish the task of consolidating the dislocated tribes of Israel. His earlier achievements augured hopefully for his future. His deliverance of the men of Jabesh-Gilead, and his great victories over the Philistines, the Moabites, Ammonites, Edomites, and Amalekites, showed vigorous military capacity; but gradually there developed itself in the nature of the man a wild perversity—‘an evil spirit of God,’ as it is called—culminating in paroxysms of insane rage, which led him to commit such frightful deeds as the massacre of the priests of Nob. S.’s history became a tragedy. Samuel, who had retired from the ‘court’ of S., and had secretly anointed David as king, did not cease to ‘mourn’ for the wayward monarch; but nothing availed to stay his downward career, not even the noble virtues of his son Jonathan; and at last he fell in a disastrous and bloody battle with the Philistines on Mount Gilboa.

**SAULCY**, *sō-sē'*, LOUIS FÉLICIEN JOSEPH CAIGNART DE: archeologist: 1807, Mar. 19—1880, Nov. 4; b. Lille, France. He studied at the Polytechnic School, Paris, became an artillery officer, gave much time to antiquarian studies, and soon obtained high reputation therein. An essay on the classification of Byzantine coins secured him a prize from the French Institute 1836. He was afterward conservator of the Museum of Artillery in Paris, a member of the Academy of Inscriptions, explored the region of the Dead Sea, and claimed the discovery of the ruins of Sodom. He published several valuable books on antiquarian subjects, was a member of prominent societies, and commander of the Legion of Honor.

**SAULLIE**: see **SALLIE**.

**SAULT**, n. *sawlt* or *sō* [OF. *sault*; mod. F. *saut*, a leap—from L. *saltus*, a leap—from *salio*, *saltum*, to leap]: a rapid in some rivers.

**SAUL TREE**: see **SAL**.

**SAULT STE. MARIE**, *sō sēnt mā'rī*, F. *sō sūngt mā-rē'*, or **SAULT DE STE. MARIE**: city, cap. of Chippewa co., Mich.; or St. Mary’s Strait (q.v.) and the St. Mary’s ship-canal, and on the Duluth South Shore and Atlantic and the Minneapolis St. Paul and Sault Ste. Marie railroads; nearly 15 m. from the outlet to Lake Superior. There are six churches, a high school, one daily and one weekly paper, one savings bank and one national bank. Water is supplied by the *Holly* system; there are street-cars; the streets are lighted by electricity; and there is excellent drainage. The surrounding region is rich in timber and minerals. Fishing is the leading interest, but there are several lumber-mills and considerable commerce. The first settlement was made 1665. Pop. (1880) 4,227: (1890) 5,760; (1900) 10,583.

## SAULT STE. MARIE CANAL.

SAULT STE. MARIE CANAL: a canal uniting Lake Superior with the other great lakes. The enterprise originated 1892, through a grant of public lands amounting to 750,000 acres, which was made by the state of Mich. for the purpose of defraying the expenses of its construction. For the amount derived from the sale of these lands a private company contracted with the state to build the canal, ground for which was broken 1853, June 4, the work being completed 1855, May 21. The original canal was 5,400 ft. long, 100 ft. wide, and 12 ft. deep, and its entire cost was \$999,802.46. Between the years 1870 and 1881 the waterway was widened and deepened and a new lock (then the largest ship-canal lock in the world) was built, bringing the total cost of the canal to \$2,150,000. The dimensions of the canal 1892 were 7,000 ft. long, 108 wide, and 16 ft. deep. The chamber of the old lock was 515 ft. long, 80 ft. wide, and 39 $\frac{1}{2}$  ft. deep, with a capacity of 1,500,000 cubic ft. The capacity of the lock for vessels ranging 800-1,200 tons is about 96 vessels per day; 11 minutes are required to fill and 8 minutes to empty the lock. The canal continued to be owned by the state of Mich. till 1881, June 6, when by act of congress it passed under the control of the general govt. The action of the Canadian govt. in discriminating against the commerce of the United States in regard to the Welland and St. Lawrence canals through excessive canal tolls and vexatious regulations, brought under general public consideration the vast importance of the great work of the enlargement of the S. S. M. C. and its locks, which began in the spring of 1887. The tonnage of vessels passing through the canal has greatly increased with the completion of the new govt. lock officially opened 1896. This lock measures 1,000 ft. in length between the gates, 100 ft. in width, and 43 $\frac{1}{2}$  ft. in depth, with an estimated capacity of 3,440,000 cubic ft. The canal has also been deepened to a navigable depth of 21 ft. Cost of improvements, about \$5,000,000. The Canadian govt. has completed and opened a new canal on the Canadian side of the river, giving a clear channel for vessels drawing 14 ft. through Canadian territory from Lake Superior to the sea. The number of vessels passing through the United States canal in 1901 was 15,837, tonnage 46,921,666; of which 25,026,522 was freight, and through the Canadian canal 4,204, tonnage 5,166,440, of which 2,375,151 was registered. During the three months ending 1903, June, 4,892 vessels passed through the United States canal and 1,668 through the Canadian canal; registered tonnage of the former, 8,037,236, of the latter, 1,544,565. See SUEZ CANAL.

## SAUMAREZ—SAUMUR.

**SAUMAREZ**, *sō-mā-rū'* (or **SAUSMAREZ**, *sō-mā-rā'*), JAMES, Baron DE: English naval hero: 1757, Mar. 11—1836, Oct. 9; b. in the island of Guernsey; descended from an old French family long settled there. He entered the navy as midshipman at the age of thirteen, and served in the American war (1774–82), receiving for his gallantry at the attack of Charleston (1775) the grade of lieut. He was promoted commander 1781, and soon afterward placed on the Jamaica station. At the great fight between Rodney and De Grasse (1782, Apr. 12), S. commanded the *Russell*, line-of-battle ship, with much distinction. For his gallant capture of the French frigate *La Reunion*, with one inferior in size and equipment, he received knighthood. He was in command of the *Orion*, a seventy-four, at the battle of l'Orient 1795, was prominent in the battle off Cape St. Vincent 1797, and was second in command under Nelson at the battle of the Nile, in which he was severely wounded. In 1801 he became a baronet, and vice-admiral of the blue, and fought his greatest action off Cadiz (July 12), defeating a French-Spanish fleet of 10 line-of-battle ships and 4 frigates, with a squadron less than half their strength, and causing to the enemy a loss of 3,000 men and three ships. This contest, than which, according to Admiral Nelson, 'a greater was never fought,' gained for S. the order of the Bath, the freedom of the city of London, and the thanks of parliament. In the Russian war, he commanded the Baltic fleet, and took or destroyed two large Russian flotillas (1809). In 1814 he became admiral, vice-admiral of Great Britain 1821, a peer 1831, and died at Guernsey. See Life by Sir John Ross (*Memoirs of Admiral Lord de Saumarez*, 2 vols. 1838).

**SAUMUR**, *sō-mür'*: town of France, on the left bank of the Loire, dept. of Maine-et-Loire, 38 m. s.w. of Tours, 28 m. s.e. of Angers by railway. Bridges connect the town, which is partly on an island, with both banks of the river. The river-side is lined with handsome quays, and there are good bridges and agreeable promenades. There is a great cavalry school, in which riding masters for the army are trained. The hôtel-de-ville and the castle are prominent buildings. Rosaries of cocoa-nut shell and articles in enamel are manufactured. The trade of S. is in spirits, wines, hemp, and linen. Pop. (1891) 14,876.

S., former cap. of the province of Saumurois, was a stronghold of the Protestants during the reign of Henry IV., at which time its pop. was 25,000. Its prosperity was annihilated by the revocation of the Edict of Nantes, and its population reduced to a fourth. Perhaps the most striking event in the history of the town was its brilliant capture by Laroche-jaquelein and the Vendéans, 1793, June 10. In this action, the victors, with slight loss, captured 60 cannon, 10,000 muskets, and 11,000 republicans.

## SAUNDERS—SAUNDERS-WOOD.

SAUNDERS, *sawn'dérz*, FREDERICK: author: 1807, Aug. 14; b. London, England. He came to New York 1837 and engaged in publishing, but afterward became city editor of the *Evening Post*. In 1859 he was appointed assist. librarian of the Astor Library, and 1876 chief librarian. Mr. S. has been a frequent contributor to periodicals, and has published, among many other works, *Memoirs of the Great Metropolis, or London from the Tower to the Crystal Palace* (1852); *New York in a Nutshell* (1853); *Homes of American Authors* (1853); *Salad for the Solitary* (1854); *Salad for the Social* (1856); *Pearls of Thought* (1858); and *Festival of Song* (1865). In 1853 Madison Univ. conferred on him the degree M.A.

SAUN'DERS, PRINCE: educator and lawyer, of negro race: about 1775–1840, Feb. 12; b. Thetford, Vt. He was well educated, taught school in Conn. and in Boston, removed to Hayti 1807, and was soon afterward employed by the pres. of the republic to obtain teachers and books from England and improve the educational methods of the country. After a short stay at Hayti, he returned to the United States, studied theology, and preached in Philadelphia. Again going to Hayti, he practiced law, became atty.gen., and held the office till his death. He arranged a valuable criminal code for the government. Among his books were *Documents Relative to the Kingdom of Hayti* (1816), *Haytian Papers* (1818).

SAUNDERS-BLUE, n. plu. *sawn'dérz-blô* [corruption of *F. cendres bleues*, blue ashes]: a sort of color prepared from calcined lapis-lazuli.

SAUNDERSON, *sawn'dér-son*, NICHOLAS, LL.D.: English mathematician: 1682, Jan.—1739, Apr. 19; b. Thurles-ton in Yorkshire. He became blind from smallpox at the age of about one year, but received a good education, including the classics, which was orally communicated. By the aid of his friends, he learned arithmetic, geometry, and algebra, by means of ingenious mechanical contri-vances. In 1707 he came to Christ's College, Oxford, as a teacher, and there delivered a series of lectures on the Newtonian philosophy, including (strangely) a discussion of Newton's theory of optics. Four years afterward he succeeded Whiston as Lucasian prof. of math. A valuable and elaborate treatise on Algebra, from his pen, was pub. 1740 (2 vols. 8vo), and another on Fluxions, including commentary on parts of Newton's *Principia*, 1756. The mental process by which he was enabled to understand the rules of perspective, the projections of the sphere, and some of the more recondite propositions of solid geometry seems to have been peculiar to himself, and was almost unintelli-gible to others. His senses of hearing and of touch were extremely acute: he could judge fairly of the size of a room and of his position in it by the sound of his own footsteps. He could tell when light clouds were passing across the sun's disk.

SAUNDERS-WOOD: see SANDERS,

## SAUNTER—SAURIN.

SAUNTER, v. *sán'tér* [Sw. *slentra*, to wander idly about; Ger. *schlendern*, to saunter; Dan. *slunte*, to idle]: to wander or stroll about idly; to loiter; to lounge: N. a stroll. SAUNTERING, imp.: ADJ. listlessly loitering: N. the act or habit of one who saunters. SAUNTERED, pp. -*tér'd*. SAUNTERER, n. -*tér'er*, one who wanders about idly.

SAUR, n. *sawr* [etym. doubt.]: soil; dirt; dirty water.

SAURIA, *saw'rī-a*: in the systems of Cuvier and other recent naturalists, an order of Reptiles (q.v.), having an elongated body, covered with scales or with bony plates; a more or less elongated tail; four limbs, or sometimes only two apparent, the rudimentary hind-limbs being concealed beneath the skin; the mouth always furnished with teeth; the ribs movable, rising and falling in respiration; the young issuing from the egg in a form similar to that of the mature animal.—To this order belong Crocodiles, Alligators, etc.; Chameleons, Geckoes, Iguanas, Agamas, Varanus, Teguixins, Lizards, Skinks, etc., numerous families, some of which contain many genera and species. Crocodiles and their allies, being covered with bony plates instead of overlapping scales, are by some naturalists removed from the Saurians, and placed nearer the Chelonians; but in general form and structure they correspond with Saurians, and have no resemblance to Chelonians. The recent S. are far excelled in size and in variety of strange forms by the fossil S., e.g., *Plesiosaurus*, *Ichthyosaurus*, etc. (see these titles).

SAURIAN, n. *saw'rī-ān* [Gr. *sauros*, a lizard]: one of the scaly reptiles of which the common lizard and the crocodile have been taken as therrepresentatives: ADJ. of or pertaining to the saurians. SAURIANS, n. plu. -*ānz*, an order of fossil reptiles of gigantic forms: see SAURIA.

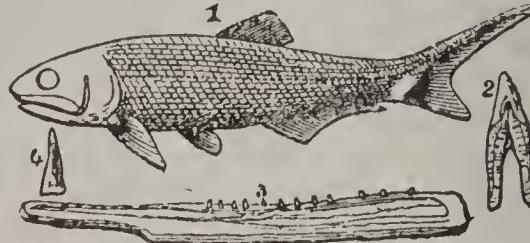
SAURIN, *sō-rāng'*, JACQUES: famous French Prot. preacher: 1677, Jan. 6—1730, Dec. 30; b. Nîmes. He studied at Geneva, and was chosen minister of a Walloon church in London 1701. But the climate of England did not agree with his delicate health; and in 1705 he settled at the Hague, where his extraordinary gift of pulpit oratory was prodigiously admired; but his clerical brethren assailed him with the accusation of heresy. The ground of their charge was that S. had attributed falsehood to God. Commenting in a thesis on the conduct of Samuel (I Sam. xvi.) when about to proceed to Bethlehem to anoint David, S. had pointed out that God induced the prophet to adopt such measures and such language as could not but lead King Saul to believe what was not true. He argued, however, that, as the ‘will of God’ can never command what is criminal or wrong, this deception by Samuel was quite innocent. S.’s logic, like his exegesis, may not be pronounced faultless, but he deserves credit at least for not denying the existence of an ethical difficulty. The dispute was carried to the synod of Hague, whither S. went to defend himself, and where he died. As a preacher, S. has often been compared with Bossuet, whom he rivals

## SAUROBATRACHIA—SAUROPTERYGIA.

in force, if not in grace and subtlety of religious sentiment. His chief productions are: *Sermons sur divers Textes de l'Écriture Sainte* (La Haye 1708–25); *Nouveaux Sermons sur la Passion* (Rotterdam 1732); *Discours sur les Événements les plus mémorables du V. et du N. T.* (Amst. 1720–28); *Abrégé de la Théologie et de la Morale Chrétiennes en Forme de Catéchisme* (Amst. 1722); and *État du Christianisme en France* (La Haye 1725).

**SAUROBATRACHIA**, n. plu. *saw'rō-bā-trā'ki-ă* [Gr. *sauros*, a lizard; *batrachos*, a frog]: the order of the tailed Amphibians; the Urodela.

**SAUROID**, a. *saw'royd* [Gr. *sauros*, a lizard; *eidos*, likeness]: having some of the characteristics of the saurians. **SAUROIDEI**, n. plu. *saw-roy'dē-i*, an order of fossil fishes, so called from their exhibiting certain sauroid or reptilian characters. **SAUROID FISHES**, fishes which approach in their structure to saurian reptiles. Of recent S. fishes, examples are Bony Pikes (q.v.) and Sturgeons (q.v.). —Fossil S. fishes are numerous, some of them of very large



Sauroids (fossil).

1, Pygopterus (restored). 2, Tooth of same (enlarged). 3, Jaw with teeth of *Belonostomus cunctus*. 4, Tooth of *B. cunctus* (enlarged).

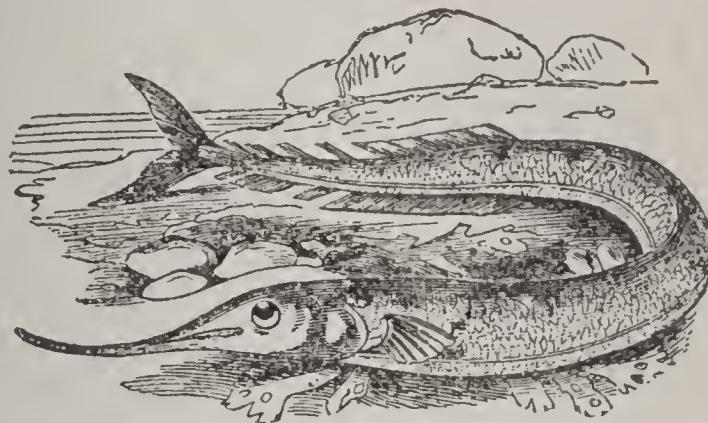
size. The teeth of *Megalichthys* are nearly four inches in length, far exceeding those of any existing fish, and bony plates of the same fish have been found five inches in diameter.

**SAUROPSIDA**, *saw-rōp'si-da* [from the Gr., meaning lizard-like]: name introduced by Prof. Huxley to include reptiles and birds; the fishes and amphibians (batrachians) being correspondingly named by him *Ichthyopsida*. Reptiles and birds agree in many points of skeletal anatomy, and somewhat in dermal characteristics; the first known birds, found fossil in the Mesozoic, were reptilian in many features (see ARCHÆOPTERYX); and, singularly, monsters and winged fowl appear in the Scripture account as created in the same fifth day or period (Gen. i. 21).

**SAUROPTERYGIA**, n. *saw-rōp'tér-ij'i-ă* [Gr. *sauros*, a lizard; *pterux* or *pteruga*, a wing or fin]: flying reptiles; one of the 13 orders of the reptiles proposed by Prof. Owen.

## SAURY PIKE—SAUSAGE-POISON.

SAURY PIKE, *saw'rī pīk* (*Scomberesox*): genus of fishes of order *Pharyngognathi* and family *Scomberesocidae*; having the body greatly elongated, and covered with minute scales; the head also much elongated, and the jaws produced into a long sharp beak, as in the Garfish (q.v.); from which, however, the genus S. P. differs in the division of the dorsal and anal fins in o finlets, as in mackerels. One European species (*S. saurus*) is about 15 inches long,



Saury Pike (*Scomberesox saurus*).

the back dark-blue, the under parts white; the fins dusky-brown. It approaches the coast, and enters inlets in shoals, pursued by larger fishes, porpoises, etc.; and to escape, the S. P. often leaps out of the water, or rushes along the surface, a hundred ft., scarcely seeming to touch the water: hence the name SKIPPER. A corresponding species on the e. United States coast is *S. Storeri*. It is one of the species called Bill-fishes. The flesh of the S. P. palatable.

SAUSAGE, n. *saw'sāj* [F. *saucisse*, a sausage—from It. *salsiccia*, a sausage—from *salsa*, sauce, seasoning—from L. *salsus*, salted; *sal*, salt]: entrail or gut of an animal thoroughly cleaned, and stuffed with meat chopped very fine and highly seasoned. Usually, a considerable length of the intestine is filled, and divided into a link of separate sausages by constricting it with pieces of string at short intervals. The sausages of Lucania, favorite with the Romans, were of fresh pork and bacon chopped fine, with nuts of the stone-pine, and flavored with cumin-seed, pepper, bay-leaves, various pot-herbs, and the sauce called garum. Italy is still noted for its Bologna sausages; and the smoked sausages of Germany are largely used; but except when quite fresh, sausages are not sure to be wholesome.

SAU'SAGE-POI'SON: dangerous poison appearing occasionally in sausages made or kept under certain unknown conditions. In Germany, where sausages are a common food, fatal cases of sausage-poisoning are not very rare. The symptoms are slow in appearing, three or four days sometimes elapsing before they manifest themselves. The poison has been described as narcotico-irritant, but medical theories of it differ. In some very rare cases the sausages were fresh; though the rule had been laid down from long experience that the poisonous ones had always been made a long time.—See also TRICHINA SPIRALIS: TRICHINIASIS.

## SAUSSURE—SAUTRĀNTIKA.

SAUSSURE, *sō-sür'*, HORACE BENEDICT DE: Swiss physicist and geologist: 1740, Feb. 17—1799, Jan. 22; b. Conches, near Geneva. In 1762 young S. obtained the chair of physics and philosophy in the Univ. of Geneva. He had rare powers as scientific explorer and observer; and 1768 he began the famous series of journeys in which he visited the Jura and Vosges Mountains, those of Germany, England, Italy, Switzerland, Sicily and adjacent isles; the extinct craters of Auvergne, etc.; and traversed the Alps 14 times by 8 different routes. He was the first 'traveller' who ever ascended the summit of Mont Blanc; he camped 17 days on the Col du Géant, and ascended Monte Rosa 1789. He took accurate note of the minerals, physical features, botany, and meteorology of the mountains; and put the science of geology for the first time on a basis of fact. His observations are given in *Voyages dans les Alpes*, etc. (Neufchatel, Geneva, Paris, 1779—96, 4 vols.)—a work admirable also for splendid descriptions of Alpine scenery. To the instruments then known, he added the cyanometer and diaphanometer, of his own invention. In 1786 S. resigned his chair; and 1798 was offered a chair of philos. by the French govt.; but his bodily and mental health had begun to fail.—S. was a member of the Council of Two Hundred and of the national assembly. He died at Geneva. Among his many works, *Sur l'hygrometrie* (1783) is notable as setting forth his discovery of the dilatation in bulk, and diminution in specific gravity, of air charged with moisture. 'Description of the Alps,' a portion of his great work, was published separately 1834, at Geneva and Paris.

SAUSSURE'S HYGROMETER, n. *sō-sürz' hī-grōm'ē-tér*: the hair hygrometer: see HYGROMETER.

SAUSSURITE, n. *saws'sū-rīt* [after *Saussure*, Swiss naturalist]: impure variety of Labrador felspar, of bluish or greenish-gray color, forming the *jade* of the Swiss Alps. SAUSSUREA, *-sū'rē-ā*, genus of herbaceous Alpine plants, ord. *Compositæ*, sub-ord. *Tubulifloræ*; the *S. alpina* has a crowded tuft of rather large purple flowers, and is found on Snowdon, and in the Highlands of Scotland.

SAUTÉ, n. *sō-tū'* [F. *sauter*; L. *saltārē*, to leap, to jump—from *saliō*, I leap]: in *cookery*, a process of frying with great nicety by tossing the materials in the pan. SAUTÉ-PAN, a shallow copper cooking-vessel resembling a frying-pan.

SAUTERELLE, n. *saw'tér-ē?* [F.]: a mason's implement, used in tracing and forming angles.

SAUTERNE, n. *sō-tērn'* [F.]: a choice French wine.

SAUTRĀNTIKA: second of the four great schools or systems of Buddhism, the three others being called *Vai-bhāshika*, *Madhyamika*, and *Yogāchāra*. They recognize the authority of the *Sūtras* (q.v.), but reject that of the Abhidharma.—See C. F. Koeppen, *Die Religion des Buddha* (Berlin 1857).

## SAVAGE.

SAVAGE, n. *sav'āj* [F. *sauvage*; OF. *salvage*—from mid-L. *salvat'icus*, savage, wild—from L. *silvat'icus*, living in the woods—from *silva*, a wood—*lit.*, one who lives in the woods]: an uncivilized human being; a fierce, merciless man; a barbarian: ADJ. wild; uncultivated; untamed; rude; unpolished; fierce; brutal. SAV'AGELY, ad. -*lī*. SAV'-AGENESS, n. -*nēs*, the state or quality of being savage; cruelty; wildness. SAV'AGERY, n. -*ā-jér-ī*, a wild, uncultivated condition; barbarism.—SYN. of ‘savage, a.’: barbarous; ferocious; murderous; inhuman; cruel; brutal; fierce; wild; untamed; uncultivated; unpolished; uncivilized; untaught; brutish; rude; pitiless; merciless; unmerciful.

SAVAGE, *sav'āj*, MINOT JUDSON: clergyman: b. Norridgewock, Me., 1841, June 10. He fitted for college, but ill health compelled him to change his plan of study; graduated from the theolog. seminary at Bangor 1864, and the same year went to Cal. as a Congl. home missionary, remaining there three years; was pastor of a church in Framingham, Mass., 1867–69, and at Hannibal, Mo., 1869–73. He left the Congl. for the Unitarian denomination; was settled in Chicago a year, pastor of the Church of the Unity in Boston, 1874–91, and in the latter year became pastor of the Church of the Messiah in Chicago. In 1896 he took charge of the Church of the Messiah in New York. He is a vigorous and fertile writer, frequently dealing with evangelical theology in a sharp polemic spirit. Among his later books are *Life Questions* (1879); *Poems* (1882); *Beliefs About the Bible* (1883); *The Religious Life* (1886); *My Creed* (1887); *Evolution of Christianity* (1893).

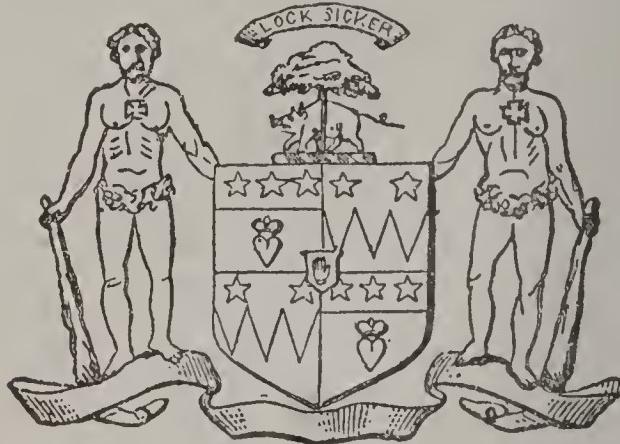
SAVAGE, RICHARD: English poet, of mediocre talent but singular history: 1697, Jan.—1743, July 31; b. London. He was educated at the grammar school of St. Albans. His claim to be the son of the Countess of Macclesfield was believed by Dr. Johnson, who, after S.'s death, published in his *Lives of the Poets* S.'s account of himself and of his persecution by his alleged mother. Boswell evidently doubted S.'s story; yet the countess made no public denial of it, though it was thrice printed. The case was a puzzle till 1858, when, through the discovery of certain legal documents, S.'s story came to be generally judged an imposture.

S.'s first successful literary work was his tragedy of *Sir Thomas Overbury*. In 1727 he killed a man in a drunken tavern brawl—for which he was tried, and sentenced to death; but was pardoned on the intercession of the Countess of Hertford with the queen. His story of his birth becoming widely known, a strong feeling arose in his favor, and he was received into the household of Lord Tyrconnel, who allowed him £200 a year. His poem, *The Wanderer*, was now published; its success was great. But S.'s prosperity did not long continue. The inveterate irregularity of his habits involved him in difficulties with Lord Tyrconnel; they parted; and afterward he sunk irretrievably. A poem which he wrote to commemorate the queen's birthday so pleased her that she conferred on him a pension of £50 a year. This sum it was his regular habit to dis-

## SAVAGES—SAVANNAH.

sipate in a week's debauchery, passing the rest of his year in what disreputable fashion he could. A subscription was started for him, mainly through the influence of Pope; but happening to visit Bristol, where he lived in the reckless manner habitual to him, he was arrested for a debt of £8, and died in prison there. Such celebrity as still attends his name he owes almost entirely to the masterly life of him by Dr. Johnson, who, in the time of his own early struggles, was thrown much into his society.

SAV'AGES, or WILD MEN, in Heraldry: frequent as supporters; represented naked, and often wreathed about the



The Douglas Arms.

head and middle with laurel, and often furnished with a club.

SAV'AGE'S STA'TION, BATTLE of: see CHICKAHOMINY, BATTLES of.

SAVANNAH, *sa-vān'na*: city, port of entry, cap. of Chatham co., Ga.; on the Savannah river, and on the Georgia Central, the Charleston and Savannah, and the Savannah Florida and Western railroads; 18 m. above the mouth of the river, 115 m. s.w. of Charleston, 295 m. e.s.e. of Atlanta; 6 sq. m.; known as 'the forest city of the south.' The development of the railroad and steamship systems, and the improvements in the river undertaken by the federal govt. to enable ships of heavy draught to proceed from the ocean direct to the city wharves, have done much to advance the prosperity of the city since the close of the civil war. The harbor is safe, spacious, easy of access, and one of the best on the s. coast, and the river is now navigable for vessels of considerable draught as far as Augusta. The city occupies a sandy plain, 40 ft. above high water; is laid out with wide streets intersecting each other at right angles, the principal ones extending n. and s., and shaded with noble trees of many varieties: there are 26 public parks, including Forsyth Place (30 acres), in the centre of the city. The city is built mostly of brick. It is well drained; lighted with gas and electricity: supplied with excellent water, paid fire dept., and street railroads; and with its dressing of water-oaks, evergreens, ornamental trees, and shrubbery, and the long, floating over-drapery

## SAVANNAH.

of gray moss that depends from the branches of the trees, merits the name 'forest city.'

As a cotton-shipping port, S. ranks 3d in the Union, with New York and New Orleans 1st and 2d respectively. During the cotton year 1890-1 the receipts at S. reached 1,000,000 bales, and the event was publicly celebrated 1891, Mar. 19. During the year ending 1890, June 30, the imports were \$472,343; domestic exports \$30,884,109. Exports included 15,922 bales of Sea Island cotton, value \$1,-579,925, and 518,963 bales of other cotton, value \$25,809,-846—total bales 534,885, value \$27,389,771; 730 tons of fertilizers, value \$12,000; 669,113 bbls. of resin, value \$955,417; 1,383,642 lbs. of cotton seed, value \$16,205; 5,552,482 gals. of turpentine, value \$2,178,719; and 22,-562,000 ft. of lumber, value \$297,630. Of total exports, \$32,279 were shipped in American vessels, \$25,243,973 in foreign steam-vessels, and \$5,607,857 in foreign sailing-vessels. Of total imports, \$121,279 were dutiable, \$351,-064 non-dutiable, \$439,642 imported direct from foreign countries, \$32,701 through exterior ports without appraisement, \$434,126 for immediate consumption, \$38,217 for warehouse, \$8,580 in American steam vessels. The tonnage entering and leaving the harbor, 1901, was 2,765,-802; the gross value of commerce \$140,000,000; the bank clearances \$182,261,154. For the year ending 1903, June, the value of merchandise imported was \$1,037,-366; exported \$54,140,882. During the ten months ending June, 1903, the bales of cotton exported numbered 984,503; value \$44,326,472. The tonnage of foreign vessels entered in 1903, June, was 15,105; of American vessels cleared 1,097; foreign 12,594.

According to census of 1890 there were 4,387 pupils enrolled in the public schools of the city—2,945 whites, and 1,442 colored; there were 88 teachers, 64 white, 24 colored. This shows an increase of 574 pupils over the enrollment of two years previous, when the total number was 3,813, and there were then but 57 teachers. School property was valued at \$191,000; receipts from all sources \$82,464; and expenditures (teachers' salaries \$49,209) \$82,071; total amount received from Peabody fund, \$102,552. The Georgia Hist. Soc. (founded 1839) has 23,000 vols. in its library. Notable is the Telfair Acad. of Science.

In 1903 the city had a total bonded debt \$31,110,550; real prop. val. \$28,044,040; personal \$11,007,880; total \$39,051,920; tax rate \$1.45 on \$100. There were 30 churches, nearly half for colored people; and 2 national banks (cap. \$750,000), 7 state banks (cap. of 6 reporting \$2,135,000), 1 saving and trust company (cap. \$125,000), and 2 private banks; and 2 daily, 5 weekly, and 2 monthly periodicals. The principal buildings were the U. S. Custom-house, City Exchange, Cotton Exchange, Masonic Temple, Odd Fellows' Hall, Hodgson Hall (quarters of Ga. Hist. Soc.), City Hospital, Rom. Cath. Cathedral, Prot. Episc. Orphans' Home, Public Library, and Synagogue. Forsyth Place contains a Confederate memorial statue in bronze; Johnson Square an obelisk to Gen. Nathanael Greene in granite; and Monterey Park a monu-

## SAVANNAH—SAVARY.

ment in memory of Count Casimir Pulaski, crowned with a statue of Liberty. The corner stone was laid by Lafayette in 1824. The chief industries are cotton compresses and factory, brass and iron foundries, wagon and car. fact., rice and flour mills, and sash, door, blind, furniture, and cotton seed oil fact. Bonaventure Cemetery (4 m. distant), Thunderbolt (5 m.), and Jasper Spring (2½ m.) are places of picturesque, social, and historical interest.—S. was settled by Gen. Oglethorpe 1733; unsuccessfully attacked by the British 1776; captured by them 1778; successfully defended against a combined American and French attempt to recapture it 1779; held by the British till the conclusion of peace; and made a city 1789. Pop. (1880) 30,709; (1890) 43,189; (1900) 54,244.

**SAVAN'NAH RIVER:** boundary between Ga. and S.C.; rising in two small streams, the Tugaloo and Kiowee, near the s. line of N. C., which unite and flow s.s.e. to the Atlantic, 18 m. below Savannah; total length about 450 m. It is navigable for large vessels to Savannah; for steam-boats of 150 tons to Augusta, 230 m.; and for small boats 150 m. above.

**SAVANNAH**, n., or **SAVANNA**, n. *sa-vă'n'na* [Sp. *sabana*, a sheet, a large plain—from L. *sabānum*; Gr. *sabanon*, a towel]: great central plain of N. Amer.—a term used in the southern states (introduced by the early Spanish settlers) as *prairie* is in the northern and western, or as *llano* and *pampa* are in S. Amer.: any very large grassy plain or natural meadow. See **PRAIRIE**: **PLAIN**.

**SAVANT**, n. *să-vănt'* [F. *savant*, a savant—from *savoir*, to know—from L. *sapérē*, to be wise]: a man of learning. **SAVANTS'**, n. plu. *-văngz'*, the learned; the corresponding L. term is, the *literati*.

**SAVARY**, *să-vă-rĕ'*, ANNE JEAN MARIE RENÉ, Duc de Rovigo: French general and diplomatist: 1774, Apr. 26—1833, June 2; b. Marcq, in Ardennes. He entered the army as a volunteer 1790, and served with distinction in the army of the Rhine. In 1797 he accompanied Desaix to Egypt as *chef d'escadron*, and remained under his command. After the battle of Marengo (1800), Napoleon made him his aide-de-camp, and for several years employed him only in political affairs, for which he showed admirable capacity. In 1803 he was made gen. of brigade; 1804, as commandant of the troops stationed at Vincennes, he presided at the execution of the Duc d'Enghien, an event which he is believed to have unduly hastened; and in the Prusso-Russian Austrian wars 1806–08, he acquired high military reputation, his victory at Ostrolenka 1807, Feb. 16, being a brilliant achievement. Created Duke of Rovigo 1808, he was sent to Spain, and negotiated the perfidious arrangement by which the Spanish king and his son were kidnapped. In 1810 he replaced Fouché as minister of police. After the fall of Napoleon, to whom he had always been passionately and unscrupulously devoted, he wished to accompany him to St. Helena; but he was confined by the British govt. at Malta for seven

## SAVE.

months, when he escaped to a ship, and was landed at Smyrna. After several vicissitudes, he returned to Paris 1818, and was reinstated in his titles and honors. In 1823 he removed to Rome; but at the close of 1831 he was appointed commander-in-chief of the French army in Africa, and during his brief administration of affairs in Algeria showed splendid energy and generalship. But ill health forced him to withdraw to France 1833, and he died at Paris. S.'s *Mémoires* (Par. 8 vols. 1828) are among the most curious and instructive documents relating to the period of the Empire.

**SAVE**, v. *sāv* [F. *sauver*--from mid. L. *salvārē*, to save, to protect--from L. *salvus*, safe]: to preserve from any evil; to rescue; to deliver; to bring out of danger; to preserve from everlasting misery; to hinder from being spent or lost; not to lose, as an opportunity; to prevent; to preserve or lay by; to spare; to be economical: PREP. except: not including. **SA'VING**, imp.: ADJ. frugal; not lavish; that secures everlasting salvation; incurring no loss; securing from loss or damage: N. something kept from being expended or used unnecessarily; that which is saved; in *OE*, exception in favor: PREP. except; excepting. **SAVED**, pp. *sāvd*. **SAVER**, n. *sā'ver*, one who saves. **SA'VINGLY**. ad. -*lī*. **SA'VINGNESS**, n. *-nēs*, the quality of being saving; frugality. **SA'VINGS**, n. plu. *-vīngz*, things kept from being wasted or lost; money laid by from time to time. **SAVE-ALL**, a small pan placed in a candlestick for burning out the ends of candles. To **SAVE APPEARANCES**, to preserve a decent outside; to do something to avoid exposure or embarrassment. **SAVE THE MARK!** an exclamation indicating the desire that 'the impression, figure, or position attained may not be disfigured or displaced'—alluding to the ancient archery contests in which, when a competitor shot well, he exclaimed, 'God save the mark!'—that is, may it not be defaced or displaced by any following shot; a familiar exclamation implying wonder or deprecation.—SYN. of 'save, v.': to preserve; reserve; spare; excuse; reconcile; rescue; deliver; protect; prevent;—of 'saving, a.': frugal; economical; thrifty; parsimonious; sparing; penurious.

**SAVE**, *sāv*: river of s. Austria, important affluent of the Danube, formed by two streams, which rise in the extreme n.w. of Carniola, and unite at Radmannsdorf 1,560 ft. above sea-level. The river then flows s.e. through Carniola, passing Laibach (at which point it becomes navigable), and forming in part the boundary between Carniola and Styria; after which it traverses Croatia; and at its confluence with the Unna, first touches the Turkish dominions, whose n. boundary it forms throughout the remainder of its course to its junction with the Danube at Belgrade. Estimated length 500 m. Its principal affluents are the Laibach (200 m.), Kulpa, Unna, Bosna, and Drina.

## SAVELOY—SAVIGNY.

**SAVELOY**, n. *säv'ē-loy* [F. *cervelas*, a kind of sausage—*from cervelle*, brains—from L. *cerebellum*, dim. of *cerebrum*, the brain]: kind of sausage sold ready cooked in the London shops; made of young *salted* pork, highly seasoned, and having a little saltpetre added to redder the color.

**SAVIGLIANO**, *sá-véł-yá'nó*: fortified town of n. Italy, province of Cuneo, 9 m. e. of Saluzzo; on the Maira and the Grana. It is a clean and handsome town. Cloth and silk are extensively manufactured, and the country near is productive in wines and grain. Cattle are reared in great numbers, and silk-worms are bred largely. Pop. of town (1881) 9,932; commune 17,150.

**SAVIGNY**, *sá-véñ-yé*, **FRIEDRICH KARL VON**: writer on Roman jurisprudence: 1779, Feb. 21—1861, Oct. 25; b. Frankfurt-on-the-Main; descended from a French Calvinistic family, that had emigrated to Germany 1622 to avoid religious persecution. He studied at Marburg, and took his degree 1800, after which he began a series of lectures on juridical subjects, attended by a numerous auditory. Struck, in his exposition of the Digest, with the divergence existing between the text and the commentaries on the theory of possession, he composed 1803 his masterly treatise, *Das Recht des Besitzes*, in which the Roman law is disengaged from the extraneous elements introduced into it by Germanic law, common usage, and the misapprehensions of commentators. Its merit was quickly recognized, and S. received advantageous offers from different universities, which, however, he declined, in order to prosecute researches in the libraries of France and Germany, with a view to a historical development of the glosses of commentators. He was assisted in this laborious undertaking by his pupil, Jakob Grimm, and by his own young wife, daughter of the poet Clem. Brentano, and Bettina von Arnim. Appointed prof. of law at Landshut 1808, he was called, two years afterward, to Berlin, on the reorganization of the univ., and there he lectured with unbroken success 32 years, also filling important offices in the univ. and the state. He died at Berlin.—S. is the virtual founder of the new historical school of writers on jurisprudence, though it is fair to admit that Hugo and Schlosser had preceded him in the same direction. The essential idea of this school is, that ‘law’ or ‘right’ is not an abstract and absolute rule, manifesting itself under the same forms in all countries; but that it is one of the forces of society, with which it changes, according to fixed laws of development that are beyond the caprices of the day. This idea, worked out historically, has produced most important and original results, and may even be said to have reconstituted the science of jurisprudence. S.’s principal writings are: *Vom Berufe unserer Zeit für Gesetzgebung und Rechtswissenschaft* (Heidelb. 1815); *Geschichte des Römischen Rechts im Mittelalter* (6 vols. Heidelb. 1826–31); *System des heutigen Römischen Rechts* (8 vols. Berl. 1840–48); *Das Obligationenrecht* (1851–53); and *Vermischte Schriften* (5 vols. Berl. 1850), essays which had appeared in the *Zeitschrift für Historische Rechtswissenschaft*, and elsewhere.

## SAVILE--SAVIN.

SAVILE, GEORGE: see HALIFAX, Marquis of.

SAVIN, n., or SAVINE, n. *sav'in* [F. *sabine*; It. *savina*; L. *Sabīna herba*, savin—*lit.*, the Sabine herb], (*Juniperus Sabīna*, see JUNIPER): low, much-branched, and very widely-spreading shrub, with very small, imbricated, evergreen leaves, on mountains in s. Europe and the East. It bears small black berries, covered with a pale blue bloom. Its foliage has a strong, fetid, aromatic, penetrating odor, particularly when rubbed. Its exhalations cause headache. The part of the plant used in medicine is the tops of the branches, collected in spring, and dried. Their odor is strong, peculiar, and unpleasant, and their taste acrid, bitter, resinous, and disagreeable. The therapeutic properties of S. are due to its volatile oil. Two lbs. of the tops yield about five ounces of this oil, limpid and nearly colorless, having the odor of the plant, and a hot acrid taste. Its composition is  $C_{10}H_{16}$ , being isomeric with oil of turpentine. S. exerts a stimulating effect on the uterine organs, and is employed in cases of amenorrhœa and chlorosis, depending on want of tone in those parts. It is best given in the form of the oil; but is a dangerous remedy, and to be used only under professional advice. If a poisonous dose has been taken, emetics should first be employed to remove any of the drug that may remain in the stomach, after which opiates and demulcents should be prescribed. S. in the form of ointment is applied externally to prolong the discharge from a blistered surface: if long kept it loses its properties.

The American S., or Red Cedar (*J. Virginiana*), differs from our Common Juniper (*J. communis*) in having pointless leaves without distinct midrib, not articulated to the stem, and varying from awl-shape to overlapping flat; and it differs from our *J. Sabina*, variety *Procumbens*, in not creeping, and in having smaller, erect fruit. It is common on barren soil as a shrub or small tree, but westward attains sometimes 60-90 feet.

## SAVINGS-BANK.

SAVINGS-BANK: institution in which small savings, to a certain amount, are received and kept at interest. The application of the banking-system to small savings was begun by individual exertions. In 1799 the Rev. J Smith, rector of Wendover in Bucks, England, to induce habits of prudence and frugality among his parishioners, offered, with two others, to receive weekly any sum not less than twopence; and if the amount were not touched before the next following Christmas, to add one-third to it as a bonus or encouragement. In 1810 the Rev. H. Duncan established a Parish Bank Friendly Soc. at Ruthwell (Scotland), more resembling a modern savings-bank. A minute account of its organization and operation drew attention to the method; and by 1817 there were 78 establishments resembling it in the United Kingdom. In that year the first savings-banks acts were passed.

*Postal Savings Banks* were established in Great Britain and Ireland, 1861, Sep. 16; and have proved of great and increasing advantage: see POST-OFFICE.

In the United Kingdom, 1885 (the last year for which reports were at hand at the time of writing), there were 1,582,474 depositors in the trustee savings-banks, whose deposits aggregated \$222,786,710; and 3,333,675 depositors in the post-office savings-banks who had \$217,600,536 in deposits: total depositors 4,916,149, deposits \$440,387,246. Besides these deposits the National Debt Commissioners held \$1,388,166 belonging to milit. savings-banks, \$852,-662 to naval savings-banks, and \$674,645 to seamen's savings-banks. 1886, Apr. 24, the commissioners held totals on account of trustee savings-banks \$224,349,822, and post-office savings-banks \$241,426,014—total \$465,775,896. Adding cash and assets in the hands of the banks and the postmaster-gen. and investments in stocks on account of depositors, there was a total of nearly \$500,000,000 belonging to savings-bank depositors. The savings-banks with the largest amount of deposits were (1) Glasgow, (2) Liverpool, (3) Manchester, (4) Edinburgh, (5) London, St. Martin's Place, (6) London, Bloomfield street, and (7) Exeter; each of which held more than \$5,000,000, and the first nearly \$20,000,000. In addition, there were a number established by railway companies for benefit of their employés, which had about \$5,000,000 deposits. In the United Kingdom the trustees and postal savings-banks are obliged by law to invest deposits in govt. securities only.

In the United States state laws formerly allowed a wide range in the character of investments of such trust funds; but numerous failures in recent years have led to more conservatism and to a more rigid official oversight. In general, it may be said, that either by legislative or judicial action investments are now limited to United States, state, and municipal securities, and approved real estate. The character of the savings-banks differs materially. Some have capital stock; others are mutual associations; some organized under state laws as commercial banks have savings depts. also; again, there are many loan and trust companies that act as depositories for savings as well as for

## SAVINGS-BANK.

trust funds; and in every state there are private banks and bankers. The U. S. comptroller of the currency now includes in his annual reports statements of the condition of state, savings, private banks, and loan and trust companies; but it is difficult to make an accurate analysis of the condition of each, owing to their complex organization. In the report for the year ending 1890, June 30 (and submitted to the 51st congress), the U. S. comptroller reported on 1,804 state banks (as distinct from national banks), 860 savings-banks, 242 private banks and bankers, and 100 loan and trust companies, in 35 states and territories. The total number of associations operating under state charters was 3,006; of 2,764 incorporated associations 1,804 were commercial banks, which had \$173,959,414 capital, \$70,551,446 surplus and undivided profits, and \$531,103,459 deposits; 235 stock savings associations, with \$22,453,198 capital, \$9,141,861 surplus and undivided profits, and \$192,635,519 deposits; 625 mutual savings associations, with \$1,407,617,430 liabilities, \$136,-257,949 surplus and undivided profits, and \$1,268,309,742 deposits; 100 loan and trust companies, with \$41,965,519 capital, \$35,861,473 surplus and undivided profits, and \$289,502,307 deposits; and 242 private banks and bankers, with \$5,936,212 capital, \$2,226,918 surplus and undivided profits, and \$18,593,185 deposits. Statements received from 407 incorporated institutions and 1,102 private banks and bankers in states and territories without laws for detailed reports, showed 297 state banks, with \$14,777,893 capital, \$3,209,175 surplus and undivided profits; 61 savings-banks, of which 49 had \$3,947,837 capital, and all had \$11,137,839 surplus and undivided profits, and \$81,-128,482 deposits; 49 loan and trust companies with \$28,710,728 capital, \$10,966,530 surplus and undivided profits, and \$46,954,185 deposits; and 1,102 private banks and bankers, with \$34,905,806 capital, \$12,191,932 surplus and undivided profits, and \$81,128,482 deposits. Nearly 60 per cent. of the total assets of all the banks of every kind in the United States, excepting national banks, belonged to the various savings associations.

The aggregate resources and liabilities of savings banks (1,036) in 1901-2, according to the report of the comptroller of the currency were as follows:

### RESOURCES.

Character.	Amount.
Loans on real estate.....	\$404,639,330
Loans on other collateral security.....	49,580,215
Other loans and discounts.....	232,049,557
Overdrafts.....	800,021
U. S. bonds.....	58,140,124
State, county and municipal bonds.....	481,568,530
Railroad bonds and stocks.....	375,623,513
Bank Stocks.....	34,520,802
Other bonds and stocks.....	411,631,200
Due from banks and bankers.....	121,396,971
Real estate, furniture, fixtures.....	53,951,088
Cash on hand .....	172,503
Cash and cash items.....	30,877,338
Other resources.....	48,171,794
<b>Total .....</b>	<b>\$2,893,172,986</b>

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# SAVIOR—SAVONA.

## LIABILITIES.

Character.	Amount.
Capital stock.....	\$ 18,633,615
Surplus .....	189,584,579
Other undivided profits.....	29,331,753
Dividends unpaid.....	2,500
Individual deposits.....	.....
Savings deposits.....	2,650,104,486
Due other banks and bankers.....	293,484
Other liabilities.....	5,222,569
Total.....	\$2,893,172,986

The resources and liabilities of 61 savings-banks, unofficially reported in 1890, were:

## RESOURCES.

Character.	Amount.
Loans on real estate .....	\$23,764,897
Loans on other collateral security.....	19,527,181
Other loans and discounts.....	4,469,341
Overdrafts.....	32,098
U. S. bonds.....	5,136,710
State, co., and municipal bonds.....	17,817,005
Railroad bonds and stocks.....	18,055,115
Bank stocks .....	392,125
Other stocks and bonds.....	4,607,424
Due from banks and bankers.....	2,650,897
Real estate, furniture, fixtures.....	2,967,056
Current expenses and taxes paid.....	258,198
Cash and cash items.....	6,617,086
Other resources.....	244,901
Total.....	\$106,540,040

## LIABILITIES.

Character.	Amount.
Capital stock.....	\$3,947,837
Surplus .....	8,792,986
Other undivided profits.....	2,344,853
Dividends unpaid .....	15,384
Individual deposits.....	2,667,323
Savings deposits.....	86,411,372
Due other banks and bankers.....	80,093
Other liabilities.....	2,280,192
Total.....	\$106,540,040

SAVIOR, or SAVIOUR, n. *sāv'yēr* [F. *sauveur*—from mid. L. *salvatorem*, a savior—from L. *salvus*, safe: Sp. *salvador*; It. *salvadore*, a deliverer]: one who saves; deliverer, redeemer. THE SAVIOUR (or SAVIOR), title of Jesus Christ or of God, as He who delivers man from the dominion of sin, and redeems man from the penalty of sin.

SAVO'NA: maritime city of n. Italy, province of Genoa, 25 m. s.w. of the city of Genoa. It is on a plain near the sea, and has numerous manufactures, including extensive potteries. The neighborhood produces olives, fruits, grain, wood, and wines. There is brisk trade with Marseille. The harbor, one of the safest in the Mediterranean, was 25 to 30 ft. deep, till the Genoese in the 16th c. filled it with stones; but since the opening of the Mont Cenis tunnel steps have been taken to clear it. The city is the third in importance on the Riviera. It is a very ancient city, and in the time of the Romans was called Sava, founded, according to tradition, by Janus. It flourished under the Roman empire, was destroyed by Rotharis (639), rebuilt by Ludovic the Pious (981), and afterward laid waste by the Saracens. Pop. about 25,000.

## SAVONAROLA.

SAVONAROLA, *sá-vó-ná-ró'lá*, GIROLAMO; celebrated preacher and political as well as religious reformer of Florence: 1452, Sep. 21—1498, May 23; b. Ferrara, of noble family. He was educated at home, and, at a very early age, became deeply versed both in the philosophy of the schools and in the old Greek philosophy, which at that time had become popular in Italy; but his disposition from the first was strongly tinged with religious asceticism, and 1474, under an almost fierce conviction of the world's intolerable wickedness, he formally withdrew from secular affairs and entered the Dominican order at Bologna. Having with the severest austerities completed his novitiate and the studies of the order, he seems to have made his first public appearance as a preacher 1482, at Florence, where he had entered the famous convent of his order, San Marco, and where he preached the Lent in that year. His first trial, however, was a signal failure. His voice was harsh and unmusical, and he so utterly failed to interest his hearers that, after a time, the course of lectures was entirely deserted. Some time afterward, S. was sent to a convent of his order at Brescia, where, by degrees, his earnestness and zeal began to attract notice, and eventually the disadvantages of manner and address, which had prevented the effect of his early efforts, either were overcome through practice, or ceased to be felt under the influence of his sterling genius and irresistible enthusiasm. In 1489 he was recalled to the convent of San Marco at Florence. His second appearance in the pulpit of San Marco was a complete success. The great subject of his declamation was the sinfulness and apostasy of the time; and in his denunciation of the vices and crimes of his age, he took as his theme what has been the topic of enthusiasts in almost every age, the mystical visions of the Apocalypse, which he applied with terrible directness to the actual evils with which, as with a moral deluge, the age was inundated; and in these half-expositions, half-prophetical outpourings, his followers claimed for him the character of an inspired prophet. Under the rule of the great founder of the family of the Medici, Lorenzo the Magnificent, art, literature, and philosophy all had followed the common direction of that elegant but semi-pagan revival which the scholars of the 15th c. had inaugurated; and the whole spirit of the social as well as intellectual movement of which Florence, under the Medici, was the centre, was utterly at variance with the lofty Christian spirituality and severe asceticism in which S. placed the very first conditions of the restoration of true religion and morality. His preaching, therefore, in its spirit, as well as in its direct allusions, was no less antagonistic to the established system of the government, than to the worldly and irreligious manners of the age; the visions and predictions ascribed to him had quite as much of political applicability as of religious significance: thus, to the aristocratic adherents of the Medici, S. early became an object of suspicion, if not of antipathy and dread. It is said by Pico de Mirandola that S. refused to grant absolution to Lorenzo, when

## SAVONAROLA.

the latter lay dying 1492; but the statement does not accord with Poliziano's account of his patron's death. Through all this time, however, S.'s relations with the church were, if not of harmony, at least not of antagonism; and when, 1493, a reform of the Dominican order in Tuscany was proposed under his auspices, it was approved by the pope, and S. was named the first general vicar. About this time, however, his preaching had assumed a directly political character, and the predictions and denunciations which formed the staple of many of his discourses pointed plainly to a political revolution in Florence and in Italy, as the divinely ordained means for regeneration of religion and morality.\* In one of his discourses, he pointed plainly to the advent of the French under Charles VIII.; and when this prediction was fulfilled by the triumphant appearance of the French expedition, S. was one of a deputation of Florentines to welcome Charles VIII. as savior of Italy, and to invite him to Florence. Very soon, however, the French were compelled to leave Florence, and a republic was established, of which S. became, though without political functions, the guiding and animating spirit, his party, popularly called *Piagnoni*, or 'Weepers,' from the penitential character which they professed, being completely in the ascendant. He was actually the lawgiver and the dictator of Florence. During this brief tenure of influence, S. displayed to the fullest extent both the extraordinary powers of his genius, and the full extravagance of the theories to which his enthusiastic asceticism impelled him. The republic of Florence was to be the model of a Christian commonwealth, of which God Himself was the chief ruler, and His Gospel the sovereign law; thus the most stringent enactments were made for repression of vice, and of all the sinful follies by which it is fomented. All the haunts of debauchery were suppressed; gambling in all its forms was prohibited; the vanities of dress were restrained by sumptuary enactments; and, under the impulse of the popular enthusiasm which the enthusiasm of the prophet engendered, women flocked in troops to the public square to fling down their costliest ornaments, and gay gallants and grave scholars destroyed, in one common *auto-da-fe* before the gates of the cathedral, whole hecatombs of the amatory poetry or licentious fiction of the day, in conjunction with the elegant paganism or unconcealed immorality of the classic period. Meanwhile, the extremes of his rigorism; the violence of his denunciations, which did not spare even the pope himself; the assumption by him, or attribution to him, of a supernatural gift of prophecy; and the extravagant interpretation of the Scripture, and especially of the Apocalypse, by which he sought to maintain his views, drew upon him the displeasure of Rome. He was cited 1495 to answer a charge of heresy at Rome; and on his failing to appear, he was forbidden to preach; the brief by which the Florentine branch of his order had been made independent was revoked; and he was again summoned to Rome. Once again S. disregarded this order. But his difficulties in

## SAVONAROLA.

Florence now began to deepen. The measures of the new republic proved impracticable. The party of the Medici, called ‘Arrabbiati’ (Enraged), began to recover ground. A conspiracy for the recall of the exiled house was formed; and though, for the time, it failed of success, and six of the conspirators were condemned and put to death, yet this very rigor hastened the reaction, for this execution was a direct violation of one of S.’s own laws, and it tended to direct the popular sympathy in favor of the conspirators. At the critical point of the struggle of parties (1497) came a sentence of excommunication from Rome against S. He openly declared the censure invalid, because unjust, and refused to hold himself bound by it. In the following year, however, when the new elections took place, the party opposed to S., the Arrabbiati, came into power. He was ordered to desist from preaching; and the struggle was brought to a crisis by the counter-denunciations of Francesco da Puglia, a preacher of the Franciscan order, long an antagonist of S. In the excited state of the popular mind thus produced, an appeal was made by both the contending parties to the interposition of divine providence by the ordeal of fire. But at the moment when the trial was to have been made, difficulties were originated, which were falsely charged to the party of S., and nothing was actually done: the result was to destroy, with the populace, the prestige of S.’s reputation, and to produce a complete revulsion of public feeling. In the midst of this reaction, he was cited before the council, and brought to trial for misleading the people by false prophecies. He denied the charge; but under agonizing and repeated torture, he is said to have made a confession, which, however, his friends say was garbled, if not utterly falsified. Though he promised under torture to recant his errors, he reasserted his innocence when the torture ceased. He was declared guilty of heresy and of seditious teaching. The acts of the trial were sent to Rome, where the sentence was confirmed; and he, with two others of his order, was given up to the secular power. An effort was made to procure a remission of the capital sentence which was passed on them, but in vain; so 1498, May 23, this extraordinary man, and his two companions, F. Domenico da Pescia and Silvestro Maruffi, were strangled, and their bodies burned by the executioner. They died professing their adherence to the Rom. Cath. Church, and humbly accepting the last absolution from the papal commissary; and it is still a question among Rom. Catholics, whether S. is to be regarded in the light of a confessor of the truth, or of a fanatical forerunner of the movement which so soon reached its development in the Reformation.—The works of S. are very numerous. They were written either in Latin or in Italian, but have for the most part been translated into French, German, Spanish, and other languages. His works in Latin are: (1) *On the Simplicity of the Human Soul*; (2) *The Triumph of the Cross*; (3) *A Dialogue of the Spirit and the Soul*; (4) *A Fourfold Exposition of the Lord’s Prayer*; (5) *On the Perfection of*

## SAVONNETTE—SAVORY.

*the Spiritual Life.* Most of them were translated contemporaneously into Italian, and some even by S. himself. His principal Italian works are: *A Treatise on Humility*, *On the Love of Jesus Christ*, *On the State of Widowhood*, *Two Treatises on Prayer*, *Rules of Christian Living* (together with a work of a title almost the same, which he wrote while in prison, and at the desire of his jailer), *On the Mysteries of the Mass*, and several other doctrinal and ascetical treatises. No collected edition of his sermons has been published, and his correspondence also has mostly disappeared; but the works which survive sufficiently illustrate the peculiarities of his genius, and the stern and fierce enthusiasm which was the secret of his influence on that corrupted though cultivated age.—See Madden's *Life of Savonarola* (2 vols. 8vo 1854); Abbé Carle's *Histoire de S.* (Paris 1842); and especially Villari's *Storia di S.* (Flor. 1859–61). See also Mrs. Oliphant's *Makers of Florence* (1877).

SAVONNETTE, n. *săv-ĕn-nĕt'* [F., a wash-ball; *savon*—from L. *sapo* or *sapōnem*, soap]: hard ball (or other form) for the toilet, principally composed of soap, rose-water, sweet-oil, oil of almonds, spermaceti, and camphor.

SAVOR, n. *să'ver* [F. *saveur*, savor, relish; Sp. *sabor*; It. *sapore*—from L. *sapor* or *sapōrem*, taste—from *sapērē*, to taste]: taste; flavor; relish; smell; that quality which renders anything valuable or agreeable; reputation: V. to have a particular taste or smell; to like the taste or smell of; to smack; to have the appearance of; to betoken; in *O.E.*, to taste intellectually; to perceive. SA'VORING, imp. SA'VORED, pp. -vér'd. SA'VORLESS, a. -lĕs, destitute of smell or taste. SA'VORY, a. -ř, pleasing to the taste or smell; relishing. SA'VORILY, ad. -ři. SA'VORINESS, n. -nĕs, the quality or condition of being savory.—SYN. of 'savor, n.': taste; flavor; relish; odor; seem; smell.

SAVORY, n. *să'vör-ř* [F. *savorée*; It. *santoreggia*; L. *satureia*, savory], (*Satureia*): genus of plants of nat. order *Labiate*, nearly allied to Thyme (*Thymus*), and differing from it in the regularly 5-toothed or 5-cleft calyx, and the stamens bent together into an arch under the upper lip of the corolla. The species are herbaceous and half-shrubby plants, all natives of s. Europe and the East. They have narrow, linear-lanceolate, entire leaves, with resinous dots, and short, axillary, little corymbs. The COMMON S., or SUMMER S. (*S. hortensis*), is cultivated in kitchen-gardens for flavoring dishes. It is an annual 6 to 12 inches high, with leaves not prickly pointed, and lilac or white flowers; has a strong and agreeable aromatic smell, and an aromatic pungent taste, and is in common use both fresh and dried for flavoring dishes. It is stomachic and tonic.—WINTER S. (*S. montana*) is used in the same way. It is a half-shrubby plant, with prickly-pointed leaves and larger flowers. Its taste is pungently aromatic.—Summer S. is propagated by seed; Winter S. by slips and cuttings.

## SAVOY.

**SAVOY**, n. *sa-voy* [so called because originally from Savoy, in France: Ger. *savoyerkohl*, savoy-cabbage]: cultivated variety of CABBAGE (q.v.), forming a large, close-head like the true cabbages, but having wrinkled leaves. A number of sub-varieties are in cultivation. The mode of cultivation and the uses are the same as those of cabbage. Savoys are much cultivated for winter use; they require a light, rich soil.

**SAVOY'**, HOUSE OF: ancient family of n.w. Ital. The small territory of Savoy formed part of ancient Gaul, and, after the decline of the Roman power, was seized by the Burgundians (407), and with Burgundy passed under the Franks (534). On the breaking up of the Frankish empire, Savoy was joined to *Transjurane Burgundy*, and with that kingdom was united to *Cisjurane Burgundy*, or Arles. On the accession of the last king of Arles to the imperial throne as Conrad II., the great lords of n.w. Italy, such as the lords of Suza, Chablais, Maurienne, and Turin, became vassals direct of the empire. The counts of Maurienne, ancestors of the House of S., are generally believed by most historians who have investigated their genealogy to have descended directly in the male line from a son of Wittekind the Great, the last independent king of the Saxons; and COUNT HUMBERT, the *White-handed*, was the first of the family who, by the addition of Chablais and Valais (grants from Emperor Conrad the Salic) to his hereditary lordship of Maurienne, rose to high position among the princes of n. Italy.—One of his descendants, HUMBERT II (ruled 1078–1103), succeeded to the marquisate of Suza (which included the greater part of Piedmont), and further increased his little territory by the conquest of Tarantasia. The family now began to form alliances with the royal houses of France, Portugal, England, Naples, Spain, and Germany, which added greatly to its political importance.—AMADEUS III. (ruled 1103–1149) received from Emperor Henry V. the title COUNT OF SAVOY (1111), and his grandson, THOMAS I. (ruled 1188–1233), obtained important accessions in Chambéry, Turin, the country of Vaud, and many other lordships. Count Thomas was the initiator of the policy so long and successfully adopted by his successors, ‘of preserving armed neutrality in all contests between France and the Empire, and of vigorously supporting the Empire against the papacy.’ From this time the counts of Savoy became the arbiters of all quarrels in north, and occasionally in south Italy, and their bravery in the field, and keen political sagacity, increased at once their political influence and their territorial jurisdiction. This family has produced more great warriors and politicians than almost any other royal house of Europe. The male line of the elder branch of the house came to an end with Charles Felix 1831.—After the death of Count Boniface 1263, without heirs, his uncle PIETRO, Earl of Richmond and Lord of Essex, usurped the crown; but 1285, the rightful heir, AMADEUS V. (ruled 1285–1323), grandson of Pietro’s elder brother, obtained the succession; and his grant to his brother

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THOMAS of the principality of Piedmont as a hereditary fief, founded the two lines of Savoy and Piedmont, which continued to rule over their respective territories till, on the latter becoming extinct 1418, Piedmont reverted to the elder line. (See AMADEUS V., VI., and VIII.)—Amadeus VIII. was the first DUKE OF SAVOY, being so created by Emperor Sigismund 1416.—CHARLES I. (ruled 1482-89) obtained from Charlotte of Lusignan, Queen of Cyprus, the transference of her rights, and from this date (1485) the dukes of Savoy claimed to be also kings of Cyprus and Jerusalem.—The elder male line becoming extinct 1496, the next collateral heirs were PHILIBERT II. (ruled 1496-1504) and CHARLES III. (ruled 1504-53); but the latter, having sided with Charles V. against Francis I. of France, was deprived of the duchy of Savoy 1533, the countries of Valais and Geneva placed themselves under the protection of Switzerland, and 1536 the country of Vaud was seized by the people of Bern.—But his son, PHILIBERT EMMANUEL, Spanish gov. in the Netherlands, succeeded, at the peace of Cateau-Cambresis (1559), in obtaining repossession of Savoy. It was this duke who attempted to convert the Vaudois (q.v.), and who founded the now important silk-production in Piedmont, besides encouraging other industries. He reannexed (1576) the principality of Oncelle, and conquered the county of Tende.—His successor, CHARLES EMMANUEL I. (ruled 1580-1630), was renowned as scholar, statesman, and warrior, but he was cursed with an inordinate ambition, which involved him in unfortunate contests with Geneva (a former town of Savoy, of which he wished to regain possession), with the French, who in revenge took possession of his dominions, and with the Spaniards.—His two sons, VICTOR AMADEUS I. (q.v.) (ruled 1630-37) and Thomas, were the respective founders of the two lines of Savoy and Savoy-Carignan. Victor Amadeus speedily regained the dominions which his father had lost; and with consent of France, added to them Montferrat, Alba, and some other places, relinquishing Pignerol, La Perouse, Angrone, and Lucerne to the French. As generalissimo of the French army in Italy, he gained two victories over the Spaniards.—His grandson, VICTOR AMADEUS II. (ruled 1675-1730), was one of the claimants for the Spanish throne on the extinction of the Spanish-Hapsburg dynasty (see SUCCESSION, WAR OF THE SPANISH); and by his adroit policy in the contest between the Hapsburgs and Bourbons for possession of this crown, he obtained extensive additions to his little territory, the chief being Alessandria, Val-di-Sesia, and other portions of the Milanese, the island of Sicily 1713, and with this latter the title king. He and his descendants were recognized also as the legitimate heirs of the Spanish throne, should the Bourbon dynasty ever become extinct. But 1720 he was compelled to surrender Sicily to Austria, in exchange for the island of Sardinia, which, with Savoy, Piedmont, and his other continental possessions, was then erected into the KINGDOM OF SARDINIA (q.v.).

## SAVOY.

SAVOY, *sa-voy'* (F. SAVOIE, *sá-vwá'*): formerly a duchy belonging to the kingdom of Sardinia (q. v.), now incorporated with France; bounded n. and e. by Switzerland, e. and s. by Piedmont, and w. by the French depts. Isère and Ain. While an Italian duchy, it was politically divided into seven provinces, which exhibited the successive steps of its acquisition by the House of Savoy; but since its annexation to France, this division has been modified, though the change has been little more than nominal. It is now separated into two depts.: first, SAVOIE, or CHAMBÉRY, the s. part of S., 2,388 sq. m.; pop. (1901) 254,781, divided into four arrondissements—Chambéry (old province of *Chambéry*), Albertville (*Alta-Savoia*), Moutiers (*Tarantasia*), and St. Jean de Maurienne (*Maurienne*)—cap., Chambéry; secondly, HAUTE-SAVOIE or CONFLANS, the n. part of S., 1,774 sq. m.; pop. (1901) 263,803: divided into four arrondissements—Bonneville (*Fossigni* or *Haucigny*), Thonon (*Ciablese* or *Chablais*), Annecy and St. Julien (*Genevese*)—cap., Annecy. The two depts. resemble each other so much in all respects that they may be described together.

S. is the most elevated tract in Europe, and is mostly covered with mountains, which break up the country into valleys, each watered by its own snow-fed torrent or stream. The highest elevation of S. is the summit of Mont Blanc (q. v.), and the lowest is the bank of the Rhone at Saint-Genix d'Aosta, 670 ft. above sea-level. The Graian Alps rise along the e. boundary of S., and form a natural barrier between it and Piedmont, several breaks or gorges affording means of communication between the two countries; from this range, the mountains gradually decrease in height toward the valley of the Rhone, which is on the w. boundary.

S. (especially Haute-Savoie) is extremely picturesque, and within a comparatively limited space exhibits at once the curious, the beautiful, the grand, and the wild and forbidding phases of natural scenery. There are the lakes of Geneva, Annecy (9 m. by  $1\frac{1}{2}$ ), Aiguebellette, each perfect in its own style of beauty; the subterranean lakes of Bauge, the cascades of Sallanches and Bout-du-monde, the intermittent springs of Pigros and Haute-Combe, the grottoes of Balme, Bauge, and Sallanches, the hot springs of Aix-les-Bains (near Chambéry), of St. Gervais, Bride, Echaillon, and others; the smiling valleys of Chambéry, Favergé, Maglan, and Albertville; the glaciers of Chamouni, Buet, and Upper Tarantasia; the wooded mountain-sides of Ciablese, the bare, rugged peaks which surround Mont Blanc, the frowning gorge of Challes, and the wild and savage glens and dells of Maurienne. Tourists consequently flock in great numbers to S., the robust to gratify their love of sight-seeing, and the invalids to benefit by the thermal springs, which are much esteemed.

The whole of the country is drained by streams which flow either into Lake Leman (the n. boundary) or the Rhone. Chief of the former is the Drance, which traverses Chablais; among the latter are the Arve, which drains

## SAVOY.

the Chamouni valley, the Usses, the Fier, the Laisse, the Guier, and the Isère. The geology of S. is marked by the presence of three distinct ranges, exhibiting respectively the primary, transition, and secondary series of rocks with great completeness; and the depth of the crevasses, the height of the mountains, inversions of strata, débris on the mountain-sides, afford excellent opportunities for study of the constitution and elements of the earth's crust.

The whole of S. is broken up into a multitude of small estates, and the country is, as a consequence, carefully cultivated, some of the fertile valleys resembling a continuous garden abounding in flowers and fruits. The ground suitable for cultivation being very limited, the enterprising natives have made extraordinary efforts to increase it by constructing line above line of parapets along the steep mountain-sides, and by filling in earth behind, forming long and narrow terraces, on which if they can succeed in growing two rows of vines, they consider themselves well rewarded for their labor. These terraces are most common in the hilly districts of Tarantasia and Maurienne.

The climate of S. is in general cold, the winters are long and severe, and the summers frequently follow without an intermediate spring. Yet S. has the vegetation of warm countries, as well as that of higher latitudes; the vine is found growing almost to the edges of the glaciers, and cereals and fruits of various sorts are produced in great perfection. The pasturage is rich and abundant, and mulberry-trees are largely planted. Although it is essentially an agricultural country, the industrial arts are represented; fabrics of cotton, printed calico and gauze, stockings, felt hats, woolen cloth, are manufactured in various localities; and there are tanneries, breweries, distilleries, glass-works, potteries, etc. The chief occupation, however, is the breeding of cattle, horses, and mules, all of which fetch good prices; and bees and silk-worms are tended for both diversion and profit.

S. is rich in minerals—silver, iron, copper, antimony, manganese, lead, zinc, asphalt, marble, granite, gypsum, sulphur, and salt. The principal mines are the spathic iron mine of St. Georges d'Hurtieres, and the lead mine of Macot. Coal is found in Maurienne.

The exports consist of the surplus of these products; also of cheese, hemp, silk both raw and spun, and wood of various sorts. S. is, except Bavaria, the only country of Europe in which advanced education is given gratuitously, there being 14 colleges for this purpose. Ordinary education also is well provided for in more than 1,200 schools, nearly all sustained on old foundations.

The Savoyards are honest, intelligent, religious, hospitable, and enthusiastically patriotic, even to a greater extent than the Swiss. More than 20,000 of them expatriate themselves annually in pursuit of various callings; but the greater portion return early in summer, while others wait till they have amassed wealth sufficient for the rest of their lives.

## SAVOY—SAVOY CONFERENCE.

SAVOY', THE : group of buildings in the Strand, London, of which only a chapel remains, burned in 1860 and restored expensively by Queen Victoria. The palace of S. was built 1245 by the Earl of Savoy and Richmond, and overlooked the Thames. It was famous for its grandeur. Afterward it was owned by John of Gaunt. King John of France, defeated at Poitiers, was prisoner there until his death. In the rebellion of Wat Tyler the palace was burned, with all its contents, which the insurgent leaders would not permit to be removed—one man who disobeyed the order, it is said, being cast into the flames. On the ruins, Henry VII. built a retreat for the poor and disabled, but it was closed by Edward VI. because its privileges were abused by the unworthy—to be opened again, however, by Queen Mary, and finally abolished by Queen Anne. In one of the halls, the Independents met to frame the Savoy Confession (q.v.), in the time of Cromwell. At the Restoration, the buildings were used as a milit. and naval hospital, but in subsequent years fell into ruin, and, all but the chapel, were removed for the erection of Waterloo Bridge 1811. The burial of many noted persons in the chapel has contributed to its preservation.

SAVOYARD, n. *sa-voy'ārd*: native or inhabitant of Savoy.

SAVOY' CONFERENCE: ecclesiastical conference, 1661, Apr. 15—July 25, between 21 Episc. and 21 Presb. divines, at the Savoy Palace in London, with the view of ascertaining what concessions would satisfy the Presbyterians, and thereby lead to ‘a perfect and entire unity and uniformity throughout the nation.’ During the rule of the Protector Cromwell, the Church of England had been in an anomalous condition. Most of the clergy who held office during the early period of the civil wars were strong royalists, and either were ejected or fled, when the cause of the parliament triumphed. Their places had been supplied in many cases by zealous Presbyterians—at that time a more numerous body in England than afterward, thus it happened at the restoration of Charles II. that a considerable section of the ministers *within the church* were hostile to the reintroduction of Episc. govt. and worship. As a preliminary to such application of governmental pressure as should bring back the church to its uniformity, the king issued letters-patent dated Mar. 27, appointing 12 bishops, with 9 clergymen as assistants on the side of the Episc. Church, with an equal number of Presb. divines, ‘to advise upon and review the *Book of Common Prayer*.’ Among the Episc. commissioners were Frewen, Abp. of York, Sheldon, Bp. of London, Gauden of Exeter, Reynolds of Norwich, etc. : among their assistants, Dr. Peter Heylin, Dr. John Pearson, and Dr. Thomas Pierce. The most notable representatives of the Presb. party were Richard Baxter, Dr. John Wallis (then Savilian prof. of geometry at Oxford), Edmund Calamy, William Spurstow, and Matthew

## SAVOY CONFESSION.

Newcomen. The Presbyterians (according to Burnett) demanded that Abp. Usher's scheme of a 'reduced Episcopacy,' in which the elements of the Scotch system of presbyteries, synods, and general assemblies were combined with distinctions of ecclesiastical ranks, should be made the basis to begin with; that responses in the service should be given up; that the prayers in the Litany should be combined into one; that no lessons should be assigned from the Apocrypha; that the psalms read in the daily service should be according to the new translation; that the term regeneration (among others) should be struck out of the baptismal service; and that the use of the surplice, of the cross in baptism, of godfathers as sponsors, and of the holy days, should be abolished. They were told in reply that the commission had no authority to discuss questions affecting the government of the church, such as were contained in Abp. Usher's scheme; whereupon they proceeded to consider the minor points, such as the alterations of the Liturgy. Baxter with the consent of his party, hastily drew up a 'Reformed Liturgy' which the Episc. commissioners would not look at, considering the wholesale rejection of the older one *ultra vires* on their part. As might have been foreseen from the start, the parties separated without arriving at any conclusion; and this fruitless attempt at 'comprehension' was followed, 1662 by the famous 'Act of Uniformity,' the result of which was that 2,000 clergymen were forced to abandon their livings in the Church of England: see NONCONFORMISTS.

SAVOY' CONFESSION: statement of faith and church polity, adopted by the Independents (the Congregationalists of that day) convened in the Savoy (q.v.) London, 1658. A few of them had part in the Westminster Assembly, but their system of polity was not countenanced. In the time of Cromwell they came to the front, though the S. C. was not consummated until shortly before his death. Ministers and delegates from more than a hundred congregations constituted the assembly, the object being to secure union and strength. They claimed no authority as a body over the churches, but agreed on the confession as a 'Declaration,' embodying their opinion and advice; and, indeed, the previous Westminster Confession was first printed as *The Humble Advice of the Assembly of Divines*, etc. In respect to polity, the Savoy Assembly declared that a particular church consists of officers and members, the members having liberty and power to choose and set apart the officers, namely, pastors, teachers, elders, and deacons, who, when elected, are to be set apart by fasting and prayer, and by the imposition of the hands of the eldership of the particular church if there be any before constituted in it, but, if none, they are not the less rightly set apart and constituted ministers of the Lord Jesus. Others, however, besides pastors and teachers, when gifted, and approved by the people, may preach. On the other hand, ordination alone, without election or consent of a local church, does not constitute a

## SAVU ISLANDS—SAW.

church officer. A church with officers, or lacking any except teachers, may administer the ordinances; and every church has power for admonition and excommunication, the admonition being private if the offense be known only to some. ‘In cases of difficulties or differences, it is according to the mind of Christ that many churches holding communion together, do, by their managers, meet in a synod or council to consider and give advice; howbeit, those synods are not intrusted with any church power, properly so called, or with any jurisdiction over the churches.’ Intercommunion of churches is recommended though all may not be walking according to the same rules of order. To guard against hierarchical tendencies, no one is to be ordained without having a call to a particular church. In general, the theory of the S. C. is that the church precedes the minister, rather than the minister the church. In respect to other matters than polity, the S. C. agrees word for word with the Westminster Confession, except in omission of certain clauses relating to civil magistrates, divorce, and the one that in part refers to community of goods.

SAVU ISLANDS, *sá-vó'*, THE : in the Indian Ocean. Pop. 35,000. They are small, except Savu;  $121^{\circ} 45' - 122^{\circ} 7'$  e. long., and  $10^{\circ} 25' - 10^{\circ} 36'$  s. lat.; 237 sq. m. The islands are healthful, and moderately fertile, the thermometer ranging  $76^{\circ}$  to  $88^{\circ}$  F. by day,  $68^{\circ}$  to  $70^{\circ}$  by night. The products are those of the Archipelago, including tobacco and horses. The five rajahs have relations with the Dutch E. Indian govt., whose post-holder resides at Seba, the rajah of which possesses much influence, is a Christian, and has a missionary on the island. There is good anchorage at Seba. The Savunese are of Malay race—brave, and feared by their neighbors. Their religion is a traditional heathenism, in which the offering of sacrifices of dogs is frequently practiced.

SAW, n. *saw* [Dut. *saege*, a narration: Dan., Sw., and Icel. *saga*, a narrative (see SAY)]: a saying; a proverb.—**SYN.** of ‘saw’: saying; maxim; axiom; proverb; apothegm.

SAW: pt. of SEE, which see.

SAW, n. *saw* [Gr. *süge*; It. *sega*; F. *scie*; Icel. *sög*; Dan. *sav*; Gael. *sàbh*, a saw: Low Ger. *suggen*, to hock, to cut with a blunt knife: comp. L. *secūrē*, to cut]: cutting instrument with a toothed edge (see below): V. to cut or separate with the saw; to use a saw. **SAW'ING**, imp.: N. the act of one who saws. **SAWED**, pt. pp. *sawd*, or **SAWN**, pp. **SAWYER**, n. *saw'yér*, one whose occupation it is to cut up timber. **SAWDUST**, the small particles of wood separated by the working of a saw (see below). **SAW-MILL**, a place where timber is sawn by machinery (see below). **SAW-PIT**, the place over which timber is sawn. **SAW-GIN**, a machine used in dressing raw cotton. **SAW-WREST** or **-SET**, an instrument used to turn the teeth of a saw a little outward on both sides alternately. **SAW-WORT**, a plant having small sharp segments like the teeth of a saw, of the genus *Serratula*, ord. *Compos'itæ*.

## SAW.

**SAW:** tool important in working wood and some other materials; usually consisting of a long strip of thin steel, with one edge cut into a continuous series of sharp teeth. Notwithstanding the great simplicity of the principle of its construction, it admits of great variation, and modern carpentry has brought into use many kinds of saws adapted to different purposes. The most common is the *Hand-saw* (fig. 1), in general use. For this the blade is broader at one end than the other, and a wooden handle is fixed to the broader end, without which it could not be used. This kind of saw is varied by the manner in which the teeth are cut and set, and in the shape and width of the blade, as in *Compass* or *Key Saws* for cutting small holes (fig. 2). Other kinds of hand-saws, e.g., the *Back-saw* (fig. 3) and the *Tenon-saw* (fig. 4), have straight blades, and the back is guarded and strengthened by a piece of

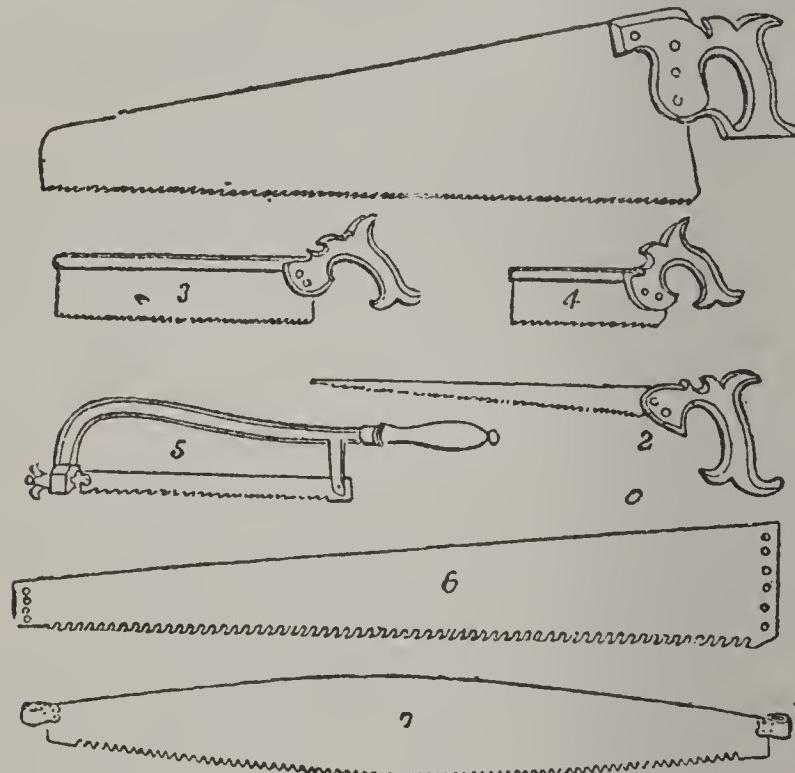


Fig. 7.

brass or iron bent over it. The *Bow-saw* (fig. 5) is used for a variety of purposes; the blade, always thin, is stretched like a bowstring to an iron frame. The *Frame-saw* (fig. 6), used chiefly in sawpits and mills for cutting timber longitudinally, is similar in shape to the ordinary hand-saw, but much larger, with holes at each end for fixing it in the frame by which it is moved up and down. For cutting timber transversely, the *Cross-cut-saw* (fig. 7) is used; this differs not only in shape, but in the set of the teeth, from other saws. The *Circular-saw* (fig. 8) has come into universal use wherever machinery can be had for working it. It is generally so fitted as to be worked under a flat bench, a part only of the blade projecting through a narrow slit in the top of the bench. It is made to revolve with great

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rapidity, and the wood resting on the bench is pushed against the saw in the direction in which it is to be cut. It does its work with great rapidity. [To save space, several forms of teeth are shown in the figure, but each saw has but one kind.] The *Band-saw* consists of a very long band—or web, as it is called—of steel, usually very narrow, and with finely-cut teeth. The two ends are joined together so as to form an endless band, which is passed over two revolving drums, one above, and the other below the working-bench, through holes in which the saw passes. With this tool, the finest patterns in open-work may be cut out with great ease and rapidity. The *Scroll-saw*, made

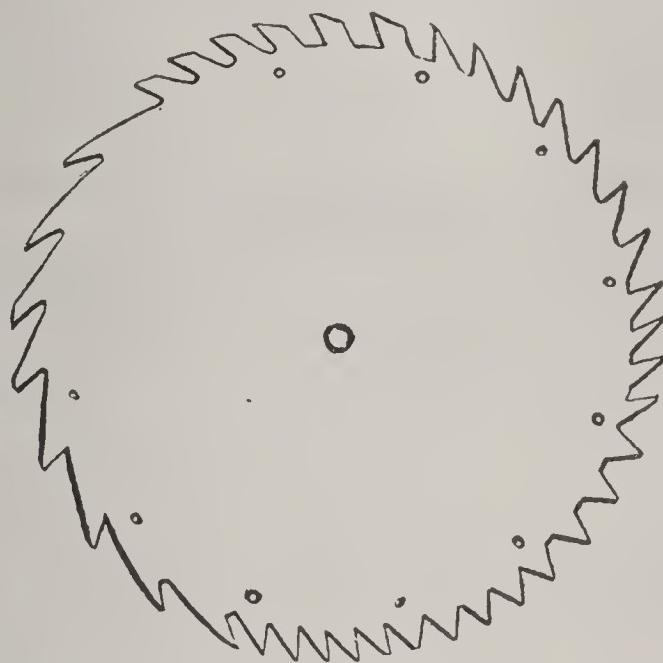


Fig. 8.—Circular-saw.

of a very thin plate of steel, fastened in a spring frame and worked by a treadle, is used for cutting veneers and fancy-work from thin boards. The *Barrel-saw*, known also as the *Crown-saw*, *Drum-saw*, and by other names, is in the form of a cylinder, with teeth on its edge. It is used in cutting the slot near the end of the staves into which the edge of the head of a barrel is placed, and for various other purposes. The *Butchers'-saw* has a narrow blade so placed in its frame that its cutting edge can be turned at almost any desired angle. *Hack-saws* are made with strong blades and very small teeth which are but slightly set. They are used for cutting off nails, bolts, or other irons. There are a large number of other saws made for special purposes, and used by surgeons, or by workers in wood and metal; also various combinations of saws in the form of gangs. To avoid the rapid diminution in size, and consequently in the efficiency, of circular-saws caused by use, a form was invented in which the saw-plate was made of the desired size, with places in its rim for insertion of teeth. With this style new teeth can be substituted for those which are worn, and the saw can thus be kept at its original size. Various improvements have been made also in the form of teeth for both hand and mill saws.

## SAWCEFLEM--SAWDUST.

The *pitch* of a saw is the slope or angle of the teeth. In the upright pitch, used in the old-style cross-cut saws, the sides are equal and the teeth cut as they are drawn back and forth by a man at each end of the saw. In the flat pitch the long and short lines of the teeth alternate, and the cutting is done when the saw is moved the way the teeth are pointed. In this country the teeth of hand-saws usually point from the handle, and cut when the saw is pushed; but in some eastern countries the reverse form is adopted, and the cutting is done as the saw is drawn toward the operator. The *set* of a saw is the spread of the points of the teeth to prevent clogging. One-half the teeth are bent slightly to one side, and the other half to the other, each alternate tooth being turned in the same direction. The set requires to be greater for cutting very soft woods than it does for cutting the hard and close-grained varieties.

SAWCEFLEM, n. *saws'flem* [L. *salsumphlegma*, salt-phlegm]: in *OE.*, a phlegm that tastes salt.

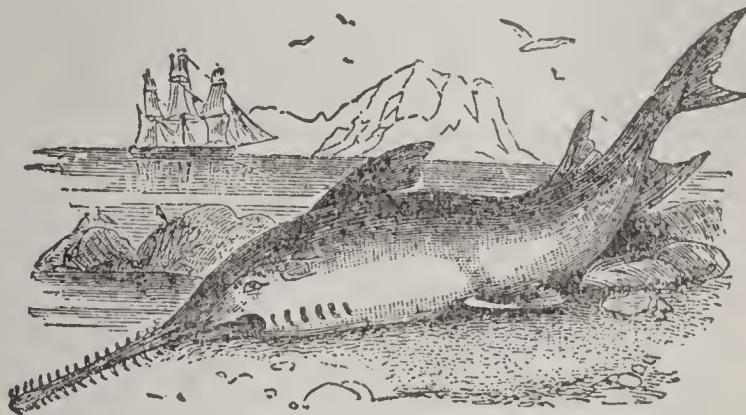
SAWDER, n. *saw'der*, in SOFT SAWDER [a corruption of the phrase SOFT SOLDER]: mendacious flattery, with the view to wheedle and deceive.

SAW'DUST: waste particles thrown off in the sawing of wood; formerly of little or no use, now of some value for various purposes. Its most interesting application is its conversion into oxalic acid—having by its rapidity and cheapness displaced every other method of making that chemical. The process is very simple. The S. is first saturated with a concentrated solution of two parts of soda and one of potash; it is then placed in shallow iron pans, under which flues run from a furnace, whereby the iron pans are made hot, and the saturated S. runs into a semi-fluid, pasty state. It is stirred about actively with rakes, to bring it all in contact with the heated surface of the iron, and to granulate it for the succeeding operations. It is next dried in similar pans, only slightly heated. In this state it is oxalate of soda mixed with potash. It is then placed on the bed of a filter, and a solution of soda is allowed to percolate through it, which carries with it all the potash, leaving it approximately pure oxalate of soda. It is then transferred to a tank, in which it is mingled with a thin milk of lime, by which it is decomposed, the lime combining with the acid to form oxalate of lime, and the soda being set free. Lastly, the oxalate of lime is put into a leaden cistern, and sulphuric acid is poured in; this takes up the lime, and sets free the oxalic acid, which readily crystallizes on the sides of the leaden cistern, or on pieces of wood placed for the purpose.

Another interesting use of the S. of hard woods, such as rosewood, ebony, etc., is a French invention, named *Bois-durci*. Various kinds of S. used are reduced to fine powder, and mixed with blood into a paste; other materials are doubtless added, for when pressed into molds it is jet-black, and receives beautiful impressions, in the form of medallions and other small articles.

## SAWFISH—SAWFLY.

**SAWFISH** (*Pristis*): genus of cartilaginous fishes, of the family *Pristidae*, which is ranked with the Rays (q.v.), though the elongated form of the body agrees rather with the sharks. In a number of anatomical characters, however, the sawfishes differ from sharks, and agree with rays, conspicuously in the position of the gill-openings, which are not on the sides, as in sharks, but on the under-surface, as in rays. The mouth is on the under surface of the head, and is furnished with pavement-like teeth, adapted for crushing. But the S. is remarkable particularly for elongation of the snout into a flat, bony sword, armed on each edge with about 20 large, bony spines or teeth; a most formidable weapon, whence the fish has its name, and which



Sawfish (*Pristis antiquorum*).

it seems to use for killing prey, rushing among shoals of fishes, and slaying them right and left. Whales are said to be sometimes killed by sawfishes, and the saw has been occasionally driven into the hull of a ship. There are six or seven known species of S., distributed over the whole world. The COMMON S. (*P. antiquorum*), ranging from our coast to the Mediterranean, was known to the ancients. It is very widely distributed, both in polar and in tropical seas. It sometimes attains the length of 18 ft., including the saw. Sawfishes are seldom seen near the shore.

**SAWFLY** (*Tenthredo*): Linnaean genus of insects of order *Hymenoptera*, now divided into many genera, and, constituting a family with very numerous species. They derive their name from the ovipositor of the females, which is scaly, serrated, pointed, and inclosed in a sheath of two concave plates. By this instrument the female S. perforates the stalks or other parts of plants, laying an egg in each hole. The hole soon becomes filled with a frothy liquid, and sometimes a gall-like swelling is formed, within which the larva resides. The larvæ of many sawflies, however, live in no such nests, but feed on foliage, like caterpillars, which they resemble. One of the most common species of gooseberry 'caterpillar' is the larva of a S. (*Nematus ribesii*). Sawflies have the abdomen cylindrical, and so united to the thorax that the distinction is not easily perceived. They vary much in the antennæ. Both pairs of wings are divided by nervures into numerous cells. Among more notable species is the CORN S. (*Cephus*

## SAW-MILL.

*pygmaeus*), which, in its perfect state, abounds on umbelliferous flowers, a shining black insect, marked with yellow, the abdomen elongated. The larva consumes the inside of the straw of corn, and, descending to the base of the straw, cuts it down level with the ground.—Another important species is the TURNIP S. (*Athalia spinarum*), reddish, spotted with black; the larva nearly black, and known by the names *Black Jack* and *Nigger*. The Turnip S. is sometimes very troublesome and destructive for a year or two, and then almost completely disappears for years.—



Turnip Sawfly (*Athalia spinarum*), in its various stages of Transformation.

The S. of the Pine (*Lophyrus pini*) sometimes, though not very often, strips pine and fir trees of their leaves.—The United States species are very numerous. The largest is *Cimbex ulmi*, which attacks the elm; its wings expand almost two inches, the female often being mistaken for a large hornet. The vine S. (*Selandria vitis*) is small, black, the body red above; the caterpillar is green, with black head and two rows of black dots on the sides. Other species attack fruit-trees.

SAW-MILL: large mill for cutting up timber by large saws worked by machinery. Saw-mills are worked by steam and water-power, and in some countries by wind. The arrangements are very simple: they consist of a fixed horizontal frame, with rollers at short intervals, upon which the tree or log of timber is laid; at the end of this, another frame is placed, in vertical position; it contains as many saws placed side by side as it is proposed to cut planks out of the log, and they are set as far apart as the desired thickness of the planks or boards. A rapid up-and-down motion is given to these saws by the machinery, and at the same time the log is pulled forward on the rollers by the same power, so as to be kept constantly up to the saws. The work is very rapid.—The circular-saw also is much used in mills for cutting planks and boards into pieces of almost any form.

## SAWNY—SAXE.

**SAWNY**, n. *saw'ni*, or **SANDY**, n. *sān'dī*: ludicrous and familiar sobriquet of a Scot<sup>-</sup>man, being a corruption of 'Alexander.'

**SAWYER**, *saw'yēr*. THOMAS JEFFERSON, D.D.: Universalist minister: b. Reading, Vt., 1804, Jan. 9. He graduated from Middlebury College 1829, and the following year became pastor of a Universalist church in New York, which position he held till 1845, when he became principal of and theological prof. in the Liberal Institute, Clinton, N. Y. He was again pastor in New York 1852–61, when he retired to Clinton. In 1869 he accepted the professorship of theol. at Tufts College. He was editor of the *Christian Messenger* 1831–45, and of the *Christian Ambassador* 1863–66, has been prominent in theological discussions in the press and on the platform, was the principal founder of Tufts College, and was offered, but declined, the presidency of this and other institutions. He has published several books, including *The Doctrine of Universal Salvation* (1854), and *Endless Punishment* (1880).

**SAX**, n. *säks* [AS. *seax*, an ax, a knife]: a knife; a sword; a dagger; a slate-maker's ax, for trimming slates to shape.

**SAXATILE**, a. *säks'ā-tīl* [L. *saxatilis*, that is found among rocks—from *saxum*, a rock]: pertaining to rocks, or living among them.

**SAXE**, *säks*, HERMANN MAURICE, Count of: one of the greatest warriors of the 18th c.: 1696, Oct. 28—1750, Nov. 30; b. Goslar; natural son of Augustus II. (q.v.). Elector of Saxony and King of Poland, and the Countess Aurora von Königsmark. When 12 years of age, he ran off from home, made his way to Flanders, joined the army of Marlborough, and took part in the capture of Lille and the siege of Tournay. With boyish love of change, he joined the Russo-Polish army before Stralsund (1711), and after the taking of Riga returned to Dresden, where his mother induced him, 1714, to espouse a young and amiable German heiress. In the two following years, he took part in the civil war raging in Poland; but having quarrelled with his father's favorite minister, he returned to Dresden, where the well-grounded jealousy of his wife made his life disagreeable. Obtaining the annulment of his marriage, and a pension from his father, he came to Paris 1720, where he studied military tactics, and originated and developed an entirely novel system of maneuvers. In 1726 he was elected Duke of Courland, and for a time maintained himself in his new possession against both Russians and Poles, but was compelled to retire to France in the following year. Joining the army on the Rhine, under the Duke of Berwick, he signalized himself at the siege of Philipsburg (1734), and decided the battle of Ettingen by a desperate charge at the head of a division of grenadiers. For these services, he was made lieut.gen. 1736, and on the breaking out of the war of the Austrian Succession, he obtained command of the left wing of the army for invasion of Bohemia, and took the strongly fortified town of Prague by storm with marvellous celerity. The capture of Egra was similarly

## SAXE.

effected a few days afterward, and the rest of the campaign showed his abilities in the field equal to his skill against fortifications. In 1744 he was made a marshal of France, and appointed to command the French army in Flanders, where he proved the soundness and superiority of his new system of tactics, by reducing to inaction an enemy much more numerous, and taking from him various important fortresses. The following year his army was reinforced; and though so ill with dropsy that he had to submit to tapping (Apr. 15), he laid siege to Tournay on the 22d, and, on the advance of the Duke of Cumberland to its relief, took position at Fontenoy, and, without relaxing the siege, awaited attack. He was assailed May 11, and the desperate valor of the English for a time bore down everything before them; but S. was carried about in his litter—a great wicker basket—encouraging his troops; and when the critical moment came, the fire of his artillery disorganized the English, and a charge of the French completed the victory. Four months afterward, every one of the numerous strong fortresses of Belgium was in his hands. In 1746, S., by a series of able maneuvers, threw back the allies on the right bank of the Maese; and gained (Oct. 11) the brilliant victory of Raucoux, for which he was rewarded with the title marshal-general, an honor which only Turenne had previously obtained. For the third time, at Laufeldt (1747, July 2), the victor of Culloden suffered complete defeat at the hands of S., whose favorite system of tactics was again brought into play; and the brilliant capture of Bergen-op-Zoom brought the allies to think of peace. The Dutch, however, were still disposed to hold out, till the capture of Maestricht (1748) destroyed their hopes; and the peace of Aix-la-Chapelle followed. S. had previously carried on correspondence with the great Frederick of Prussia, and he now visited him at Berlin, receiving a brilliant reception. In the following year, Frederick wrote to Voltaire: 'I have seen the hero of France, the Turenne of Louis XV.'s time. I have received much instruction from his discourse on the art of war. This general could teach all the generals in Europe.' S. retired to his estate of Chambord, and died there of dropsy. His work on the art of war, *Mes Rêveries*, was pub. Paris 1757.

S. was probably the greatest captain of his time, and a gallant and enterprising leader; but he was a mere soldier, and the offer of membership made to him by the Académie Française is ridiculous. S. had, however, the good sense to decline the proffer, and he did so in a sentence whose extraordinary orthography accidentally rebuked, more than the most cutting sarcasm could have done, the mean sycophancy of the Académie. He wrote: 'Ils veule m'fere de la cademie ; sela m'iret come une bage a un chas.'

Of the many biographies of S., few are to be much trusted.—See *Moritz von Sachsen* (2d ed 1870), by Karl von Weber; and *Nouvelle Biographie Générale* (art. 'Saxe'). His character and genius are well, though not flatteringly, portrayed in Carlyle's *Life of Frederick the Great*.

## SAXE—SAXE-ALTENBURG.

SAXE, *säks*, JOHN GODFREY, LL.D.: poet: 1816, June 2--1887, Mar. 31; b. Highgate, Vt. He graduated from Middlebury College 1839, studied law, commenced practice in Franklin co., Vt., 1843, served the state as atty. for Chittenden co. 1850-1, as atty.gen. 1856, and for a while in the customs department. He was editor of the *Burlington Sentinel* 1850-56; democratic candidate for gov. 1859 and 60; lived for several years in New York, where he engaged in writing and lecturing; and 1872 removed to Albany and joined the editorial staff of the *Evening Journal*. Many of his poems, including several humorous pieces, were extremely popular, and various collections have appeared. Among his numerous books were *Humorous and Satirical Poems* (1850); *The Times, the Telegraph, and Other Poems* (1865); and *Leisure Day Rhymes* (1875). He died at Albany.

SAXE-ALTENBURG, *säks-äl'ten-bérg* (Ger. SACHSEN-ALTENBURG, *sák'sén äl'tén-búrc̄h*): smallest of the minor Saxon states; a duchy bounded by Saxe-Weimar, Prussian Saxony, the kingdom of Saxony, Saxe-Meiningen, and Schwarzbburg-Rudolstadt; and separated into two nearly equal parts by the interposed principality of Reuss-Gera. The e. portion, or *circle of Altenburg*, was formerly called *Pleissengau*, being watered by the Pleisse; it contains 254 Eng. sq. m.; pop. about 135,000. The w. part or *circle of Saal-Eisenberg*, is watered by the Saale, with the Orla and Rode; 256 Eng. sq. m.; pop. about 60,000. Total, 510 sq. m.; pop. (1880) 155,036; (1890) 170,867; (1900) 194,914. nearly half of whom are inhabitants of towns. The vast bulk of the people (999 in 1000) are Protestants, there being in 1872 only 193 Rom. Catholics, 16 Christian sectaries, and 10 Jews. The e. portion is open, undulating, and very fertile, and agriculture is admirably developed, so that much more corn is produced than is necessary for home-consumption. The peasants in this circle, though speaking the Thuringian dialect, show in dress, manners, and customs a family resemblance to the Wendish-speaking Serbs of Lusatia; and numerous names of places, especially those ending in *itz*, indicate their Slavic origin. They are celebrated throughout Germany for skill as agriculturists, and for superior intelligence, knowledge, and comparative wealth. In 1889-90 the revenue was \$627,274; expenditure \$626,767; debt \$220,326. The troops are, of course, under the command of the German emperor. S. is a limited monarchy, in accordance with the constitution of 1831, modified somewhat by the events of 1848-9. By the law of 1870, the single chamber consists of 30 members, 9 representing the towns, 12 the country, and 9 the persons who pay most taxes. The govt. is in the hands of a ministry of three. As a member of the empire, S.-A. has one vote in the council, and one representative in the diet. Altenburg (q.v.) is the seat of govt. See SAXON STATES, MINOR: GERMANY.

## SAXE-COBURG GOTHA.

SAXE-COBURG-GOTHA, *säks-kō'bērg-gō'tā* (in Ger. SACHSEN KOBURG-GOTHA, *säch'sén-kō'bärzh-gō'tā*): third in size and pop. of the minor Saxon states; a duchy comprising the duchy of *Gotha*, between Prussia, Schwarzburg, Meiningen, and Weimar; 542 Eng. sq. m.; pop. (1880) 137,988: and the duchy of *Coburg*, 18 m. s. of Gotha, between Meiningen and Bavaria: 215 Eng. sq. m.; pop. (1880) 56,728. Total 755 Eng. sq.m.; pop. (1871) 174,339; (1880) 194,716; (1890) 206,329; (1900) 229,500, of these 212,514 Protestants, 2,956 Catholics, 580 Jews. Gotha lies on the n. side of the Thuringer-wald, which extends along and within its s. frontier; but the rest of this duchy consists of low, undulating, and very fertile land, and is watered by the Werra, affluent of the Weser; the Unstrut, tributary of the Saale; and several smaller streams. Coburg lies on the s. slope of the same range, is watered by the Itz and Rodach, affluents of the Main, and has extensive forests, and many beautiful valleys between the spurs of the Thuringer-wald. Of the surface of the whole duchy,  $\frac{5}{9}$  is arable,  $\frac{2}{9}$  is wood,  $\frac{1}{14}$  waste land, and the rest pasture and gardens. In the plains and valleys, the climate is mild and salubrious, but in mountainous parts of Gotha more inclement. Agriculture is the principal occupation; corn and flax are produced in abundance, also potatoes, and leguminous plants. The breeding of horses, cattle, and sheep is successfully conducted. The mineral wealth includes coal (chiefly in Gotha), iron, cobalt, manganese; also marble, porcelain-earth, mill-stones, and salt. The manufactures are not important, and are chiefly confined to Gotha. There is a large beet-sugar factory at Gotha. The extensive forests of the duchy employ a large proportion of the people in production of pitch, tar, and potash. The duchy is a limited monarchy, in accordance with the fundamental law of 1852. Coburg and Gotha have each a *landtag*, or diet; that of Coburg consisting of 11, and of Gotha of 19 deputies; besides which there is a common *landtag* for the whole state, composed of 7 of the Coburg, and 14 of the Gotha representatives, elected by their respective diets. The particular diets for the two duchies are elected by the people at large. There are two ministers for carrying on the govt.—one for Coburg, another for Gotha. As a member of the empire, S.-C.-G. has one vote in the federal council, and has the right to choose two deputies to the imperial diet. As in other German states, the troops are under the command of the German emperor. Education is well diffused; and the higher education is cultivated by the gymnasia and academies.

The finances of the two portions of the duchy are separately administered. In 1889-90 the joint revenue was \$941,733; expenditure \$805,940; debt \$1,034,442. The present ducal family is distinguished for the spirited and liberal character of its members, as well as for physical and mental gifts. It is allied with several royal families of Europe, the present duke's predecessor having been his uncle Alfred, son of the late Prince Albert and Queen Victoria of Great Britain. The heir-appar-

## SAXE HOLM—SAXE-MEININGEN.

ent to the duchy is Arthur, Prince of Connaught, son of H. R. H. the Duke of Connaught. All the Saxon ruling families are descended from the Counts of Wettin, a place near Magdeburg. See SAXON STATES, MINOR: GERMANY.

SAXE HOLM, *süks hōm*: fictitious name of author (or authors) of a series of brief stories, which appeared first in *Scribner's Monthly*, and were collected and published in 2 vols. 1874–76. The authorship of the stories has never been confessed; but most of them have with much probability been attributed to Helen Hunt Jackson: see JACKSON, HELEN MARIA FISKE (HUNT).

SAXE-MEININGEN, *süks mī'ning-en* (called also [Ger.] SACHSEN-MEININGEN-HILDEURGHAUSEN, *säch'sen-mī'ning-en hilt'bürch-how'zen*): second in size and pop. of the minor Saxon states; a duchy, consisting of one large crescent-shaped territory, immediately n. of Bavaria and Coburg, with the horns of the crescent pointing n.; average breadth 10 m., length 80 m. along the s.w. slope of the Thuringian forest; 862 Eng. sq. m.; with two small isolated terr., Kranichfeld and Kamburg: total 953 sq. m.; pop. (1880) 207,075; (1890) 223,920; (1900) 250,731. In 1866, admin. reforms were introduced, and the territory formerly in 11 administrative dist. was distributed into 4. Of the total pop. 1900, 244,810 were Prot.; 4,170 Rom. Cath.; 1,321 Jews; and a small number of Christian sectaries. The crescent is composed of the old duchy of Meiningen, with the old duchy of Hildburghausen, and the principality of Saalfeld (both of which, with Kamburg, were annexed to Meiningen 1826). S. forms the s.w. of Thuringia (q.v.), and is traversed in the e. and n. by the Thuringer-wald, offshoots from which also cover the w., while the Rhön-gebirge enters the country at the s.w. Its surface is thus necessarily hilly, in some places even mountainous; but between the mountain ridges are numerous fruitful valleys, and that of the Werra is one of the most fertile and picturesque in Germany. The Werra, Saale, Milz, Steinach, Itz, etc., water the country. Two-fifths of the country is arable land; a nearly equal extent is under wood. In the lower lands, agriculture is in an advanced condition; corn, potatoes, hemp, flax, and tobacco are the chief crops.

The mining industry of the e. and n. is considerable, employing recently about 550 men; and the important mineral products are iron, copper, cobalt, coal, porcelain-clay, sulphur, and salt from the works of Salzungen, Neu-sulza, and Friedrichshall. S.-M. is also an active manufacturing district, chiefly in woolen, cotton, and linen fabrics, and paper; and brewing, distilling, making of glass and porcelain, and other industries are prosecuted. The fabrication of wooden toys in the district around Sonneburg employed, a few years since, 2,092 men; the product is bought by the Sonneburg dealers for export. A rape-sugar factory is maintained.—S.-M. is a limited monarchy, in accordance with the fundamental law of 1829, and the laws of 1871 and 73. The diet consists of 24 representatives—4 representing the more extensive landowners, 4 the

## SAXE-WEIMAR-EISENACH.

persons who pay most taxes, and 16 being the deputies of the rest of the inhabitants. As a member of the empire, S.-M. has one vote in the federal council, and sends two deputies to the diet of the empire. The troops of S.-M. form part of the imperial army. The govt. is carried on by four ministers, each of whom heads a separate dept. In 1900-2 the revenue was 8,744,478 marks; expenditure 7,888,598 marks; debt 8,210,919 marks. S.-M. had for some time the distinction of being the best-governed state in Germany. See SAXON STATES, MINOR: GERMANY.

**SAXE-WEIMAR-EISENACH**, *säks-wī'mér-ī'zēn-āch* (Ger. *SACHSEN-WEIMAR-EISENACH*, *säch'sén-wī'mär-ī'zēn-āch*): largest of the Thuringian and of the minor Saxon states; a grand duchy, consisting of *Weimar*, between Prussia, Altenburg, and Schwarzburg-Rudolstadt, which contains (inclusive of Allstädt, on the Unstrut, within Prussia, 45 Eng. sq. m., and Ilmenau, in s.e. Gotha, 32 Eng. sq. m.) 679 English sq. m.; pop. (1880) 168,071; *Eisenach*, the w. portion, n. of Meiningen and Bavaria, which contains (inclusive of Ostheim, in the Rhön-gebirge, in Bavaria, 23 Eng. sq. m.) 465 Eng. sq. m.; pop. (1880) 90,852; and *Neustadt*, on the w. boundary of the kingdom of Saxony, which contains 242 Eng. sq. m.; pop. (1880) 50,654. Total 1,388 Eng. sq. m.; pop. (1871) 286,183; (1880) 309,577, of whom 10,267 were Rom. Cath., these and more than 1,100 Jews being chiefly in Eisenach; (1900) 362,873. The Eisenach portion is traversed in the n. by the Thüringerwald, and in the s. by the Rhön-gebirge, the intermediate districts being hilly and undulating, and watered by the Werra and its feeders, the Fulda, Ulster, Suhl, and Orsel. The Neustadt division is traversed from s.e. to n.w. by offshoots of the Erz-gebirge; but most of the surface belongs to the plain of the Saale, and is watered by the Elster and Orla, affluents of that river. The Weimar portion also is partly hilly, and partly belongs to the plain of the Saale, which, with its tributary, the Ilm, traverses it. The highest peak in the grand duchy is Hinkelhahn (2,694 ft.), in the detached territory of Ilmenau. The climate is somewhat inclement in the high lands, more temperate in the plains, and particularly pleasant in the valley of the Saale. Of the whole surface, about  $\frac{3}{5}$  is arable,  $\frac{3}{11}$  is forest. Agriculture is in an advanced condition; much grain is produced and potatoes, pulse, hemp, flax, hops, and (on the banks of the Saale) vines are cultivated. Horse and cattle breeding is a common pursuit in Neustadt and Eisenach, and sheep-breeding in Weimar, the sheep having the usual good reputation of the Saxon breed. The mineral wealth comprises coal, iron, copper, cobalt, and marble. Eisenach is the chief seat of manufactures, except woolens, made principally in Neustadt. The govt. is, according to the revised fundamental law of 1850, a limited monarchy; the diet, or landtag, is composed of 33 deputies, of whom five are chosen by land owners having a yearly income of from 3,000 marks upwards; 5 by those who possess the same income from other sources, and 23 by universal suffrage. The govt. is administered by three heads of

## SAX-HORN—SAXIFRAGE.

departments. As a member of the empire, S. has one vote in the federal council, and elects three deputies to the imperial diet. The troops of S. form part of one of the Thuringian regiments in the 11th *corps d'armée* of the empire. In 1889-90 the revenue and expenditure were \$1,551,705; debt \$1,347,058. The Grand Duke of Weimar is chief of the Ernestine branch of the House of Saxony. The most celebrated of the Weimar family was Duke Karl-August, the Mæcenas of the art, literature, and science of Germany, who ruled 1775-1828, and earnestly favored the development of public prosperity and the progress of education. Under his care, the Univ. of Jena became an intellectual focus to Germany; and the presence of Herder, Goethe, Schiller, and others, at his court, entitled it to be denominated the abode of the Muses. He also elevated the theatre of Weimar to its present position as the chief German school of dramatic art. In 1806 he joined the Confederation of the Rhine with the title duke, and received from the Congress of Vienna an accession of territory and the title grand duke. His successors have followed in his footsteps. See SAXON STATES, MINOR: GERMANY.

**SAX-HORN**, n. *săks'hawrn* [after the inventor Charles Joseph *Sax*]: name of a group of six brass wind-instruments. They have a wide mouthpiece and three, four, or five cylinders, so that each horn is capable of playing all the notes of its scale without difficulty. The tone is round, pure, and full, and the horns are much employed in milit. bands. Called also SAX-CORNET.

**SAXICAVOUS**, a. *săks-ĕ-kă'vūs* [L. *saxum*, a rock; *cavus*, hollow]: a term applied to animals that make holes in rocks and live in them.

**SAXICOLOUS**, a. *săks-ĕ-kō-lūs* [L. *saxum*, a rock; *colo*, I inhabit]: in bot., growing on rocks.

**SAXIFRAGE**, n. *săks'ĕ-frāj* [F.—from L. *saxifragus*, stone-breaking—from *saxum*, a rock; *frango*, I break]: a plant or medicine formerly supposed to have the power of dissolving stone in the bladder. **SAXIFRAGOUS**, a. *-ĕfrāgūs*, dissolving stone, especially in the bladder. *Saxifrage* (*Saxifraga*) is a genus of plants of nat. order *Saxifrageæ* or *Saxifragaceæ*. This order has a calyx usually of five sepals, more or less cohering at the base; a corolla usually of five perigynous petals, alternate with the sepals, rarely lacking; perigynous stamens; a hypogynous or perigynous disk; an ovary usually of two carpels, cohering more or less by their face, but diverging at the apex; fruit generally a 1-2-celled capsule, the cells opening at the ventral suture, and often divaricating when ripe; the seeds usually minute and numerous. The order *Saxifrageæ* is sometimes regarded as including more than 900 species, divided into several sub-orders, which are elevated by some botanists into distinct orders—leaving, however, more than 300 species to the reduced order *SAXIFRAGEÆ*, which contains herbaceous plants, often growing in patches, with entire or divided alternate exstipulate leaves.

## SAXO-GRAMMATICUS.

natives chiefly of mountainous tracts in the n. hemisphere, and often found up to the limits of perpetual snow, some of them forming there a rich and beautiful turf, which they adorn with their pleasing flowers. Some of the genus *Saxifraga* are well known in gardens, and are employed to cover rock-works, etc. *S. umbrosa*, London Pride, or



Saxifrage (*S. stellaris*).

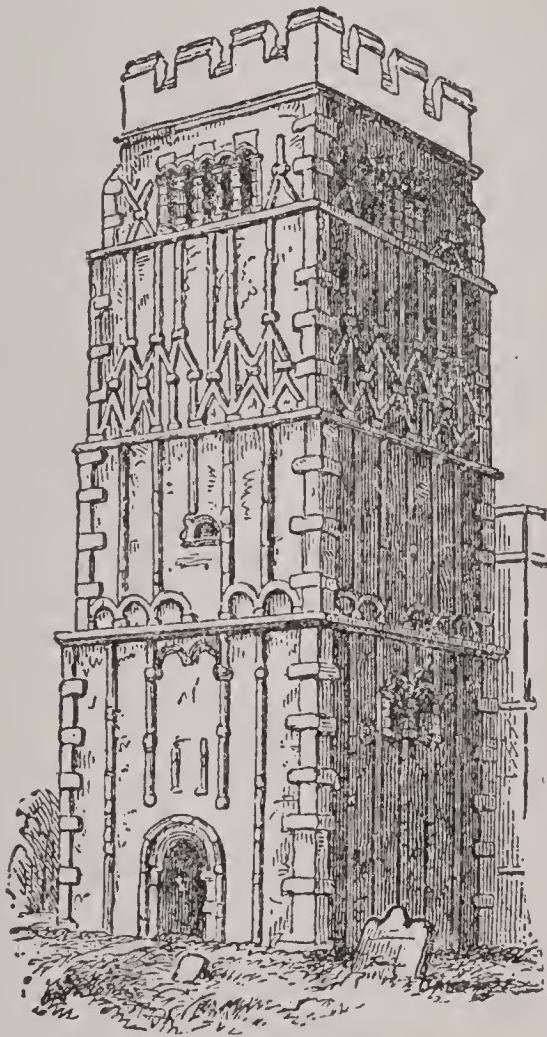
None-so-pretty, is familiar in cottage gardens: it is native of the hills of Spain, and of s. and w. Ireland.—Gray includes, in the family, the currants, mock-oranges, deutzias, hydrangeas, alum-roots, &c. The ‘Beefsteak Geranium,’ cultivated under that mistaken name, is a saxifrage.

SAXO-GRAMMATICUS, *săksō grăm-măt'i-küs* (i.e., Saxo the ‘Grammaticus’ or ‘Scholar’): most celebrated of early Danish chroniclers. He lived in the 12th c.; about 1180 became sec. to Abp. Absalon; and is said to have died at Koeskilde 1204. S. undoubtedly formed his style on that of the later Roman historians, particularly Valerius Maximus and Martianus Capella; yet in his whole mode of representation, he belongs to the school of mediæval chroniclers, though ranking first in that school. Though a cleric, he seems to have avoided the sway of clerical prejudices. His work, *Historia Danica*, which at the abp.’s instigation he began to write about 1185, consists of 16 books. The earlier portions are not critical; but in regard to times near his own, S. is of value as an authority, though he evidently lacked a keen critical sense. According to his own statement, he derived his knowledge of the remoter period of Danish history—the ‘Heroic Age’ of the North—from old songs, Runic inscriptions, and the historical notices and traditions of the Icelanders; but he is too patriotic a Dane to be impartial in his treatment of the Danish sagas, though a rudimentary critical tendency is occasionally

## SAXON—SAXON ARCHITECTURE.

visible. The best ed. of the *Historia Danica* is that undertaken by P. E. Müller, and finished by J. M. Velschov (Copen. 1839), furnished with a complete critical apparatus. There are good translations from the original Latin into Danish.

**SAXON**, n. *sāks'n* [AS. *Seaxa*, a Saxon; *Seaxan*, the Saxons—perhaps from *seax*, a short sword, a dagger]: one of the people who conquered England in the 5th and 6th c.: the language of the Saxons, known as Anglo-Saxon (see ANGLO-SAXONS: ANGLO-SAXON LANGUAGE AND LITERATURE), and regarded as the basis of the English language: a native of modern Saxony (see SAXONS: SAXONY): ADJ. pertaining to the Saxons. **SAX'ONISM**, n. *-n-izm*, an idiom of the Saxon language. **SAX'ONIST**, n. *-ist*, one versed in the Saxon language. **SAX'ONY**, n. *-i*, second in importance and pop. of the minor German states (see below): a cloth made of wool produced there. **SAXON BLUE**, sulphate of indigo, used as a dye stuff.



Tower of Earl's Barton, Northamptonshire.  
(From Parker's *Glossary of Architecture*.)

**SAX'ON ARCHITECTURE**: style of building in England before the introduction of the Norman architecture at the Conquest. There are few specimens remaining which can be depended on as genuine. The Saxons built chiefly

## SAXON LAND—SAXONS.

in wood, and all their wooden edifices are now lost. It seems probable that they used a rude and simple style, not unlike Early Norman. There are several buildings in England which Rickman considers entitled to rank as Saxon: among these, the Tower of Earl's Barton, Northamptonshire, is one of the best examples. The peculiar 'long and short' work of the quoins, the projecting fillets running up the face of the walls, and interlacing like wood-work, and the baluster-like shafts between the openings of the upper windows, are characteristic of the style.

SAX'ON LAND: see TRANSYLVANIA.

SAX'ONS (L. *Saxones*, Ger. *Sachsen*): German people, mentioned first by Ptolemy (d. after A.D. 161), who makes them inhabit a district s. of the Cimbrian Peninsula. Toward the end of the 3d c., a 'Saxon League' or 'Confederation' makes its appearance in n.w. Germany, to which belonged, besides S. proper, the Cherusci, the Angrivarii, and the largest part of the Chauci. In the times of Emperors Julian and Valentinian, S. and Franks invaded the Roman territory; but their piratical descents on the coasts of Britain and Gaul are far more famous. These commenced at an unknown period, but probably much earlier than has been commonly supposed. Recent investigations seem to prove that S. had established themselves in England long before the time of the mythical Heugist and Horsa (see ANGLO-SAXONS); and we know that, as early as 287, Carausius, a Belgic admiral in the Roman service, made himself 'Augustus' in Britain by their help. They had firmly rooted themselves, at the beginning of the 5th c., in the present Normandy, where a tract of land was named after them, the *Limes Saxonicus*. They fought against Attila (q.v.) in the Catalaunian Plain, 451. They also obtained a footing at the mouth of the Loire; but all the S. who settled in France 'disappeared' before the Franks, i. e., were probably incorporated with their more powerful kinsmen of s. Germany. At home, the S. (called *Alt Sachsen*, or 'Old Saxons,' to distinguish them from the emigrant hordes who found their way to England and France) enlarged, by conquest, their territory n. and n.w., as far as the North Sea, the Yssel, and the Rhine; s., as far as the Sieg, and nearly to the Eder; e., to the Weser and Werra, the Southern Harz, the Elbe, and the Lower Saale. They, with the Franks, destroyed the kingdom of the Thuringians 531, and obtained possession of the land between the Harz and the Unstrut; but this district was later forced to acknowledge the Frankish sovereignty. From 719, wars between the S. and the Franks became constant; but the latter, after 772, were generally successful, in spite of the vigorous resistance offered by Wittekind; and 804 the S. were finally subjugated by the arms of Charlemagne. Wittekind was the last Saxon king, and the first Saxon duke of the German empire. A collection of the old national laws and usages of the S., under the title *Lex Saxonum*, was made during the reign of Charlemagne.

From two MSS., one preserved at Munich, the other in

## SAXONS—SAXON SWITZERLAND.

the Brit. Museum, A. Schnieller published (1830-40) an 'Old Saxon' poem of the 9th c., called *Hēliand*, i.e., the 'Healer,' or 'Saviour,' which narrates in alliterative verse the 'History of Christ' according to the Gospels, whence it is called also the 'Old Saxon Gospel Harmony.' It is probably a part of a more comprehensive work, embracing a poetical treatment of the history of the Old and New Test., which Ludvig the Pious intrusted to some distinguished Saxon singer. This unknown poet lived, as his language leads us to conjecture, somewhere between Münster, Essen, and Kleve. His work is not only the almost sole monument of the old Saxon tongue, but is also of high poetical value, through its warmth of feeling, and the strength and splendor of its diction—worthy, indeed, to take its place with the contemporary Anglo-Saxon and old Norse poetry.—See Vilmar's *Deutsche Alterthümer im Hēliand* (2d ed. 1862).

**SAX'ONS, LAW OF THE:** see SALIC LAW.

**SAX'ON STATES, MINOR:** now comprising the four Saxon duchies, Saxe-Altenburg (q.v.), Saxe-Coburg-Gotha (q.v.), Saxe-Meiningen (q.v.), and Saxe-Weimar-Eisenach (q.v.). The capitulation of Wittenberg, which followed the rout of Mühlberg (see SAXONY), and deprived John Frederick the Magnanimous of the electorate of Saxony, at the same time despoiled him of a large portion of the hereditary possessions of the Ernestine branch. The remainder, amounting—after the acquisition of Coburg, Altenburg, Eisenburg, etc., 1554—to little more than one-fifth of the whole Saxon territory (see SAXONY), was divided into two portions, *Saxe-Gotha* and *Saxe-Weimar*, the former falling to John Fredrick II., and the latter to John William, the two sons of the deposed elector. Each of these portions was afterward subdivided, the former into *Saxe-Coburg* and *Saxe-Eisenach*, and the latter (1573) into *Saxe-Weimar* and *Saxe-Altenburg*. A bewildering series of subdivisions and reunions followed. The gradual adoption of the law of primogeniture during the 18th c., and the extinction of various cadet branches, has left the four states above named. Should the Albertine or Saxon-royal line become extinct, the Duke of Weimar succeeds to the throne; and failing his family, the lines of Saxe-Meiningen, Saxe-Altenburg, and Saxe-Coburg-Gotha obtain in this order the right of succession.

**SAX'ON SWITZ'ERLAND:** see SAXONY.

## SAXONY.

SAX'ONY (Ger. SACHSEN, *sâch'sen*), KINGDOM OF: 2nd in importance and population, and 4th in extent of the minor German states; bounded n. by Prussia, s. by Austria, w. by Bavaria and the Saxon Duchies; 5,787 sq. m. Pop. (1881) 2,972,805; (1900) 4,202,216; divided into four districts: Dresden, Leipzig, Zwickau, Bautzen.

The term S. has three applications in German history (1) a mediæval duchy in n. Germany; (2) a subsequent electorate which afterward became the present kingdom of S. (chief subject of this article); (3) a ducal province of Prussia formed 1815 out of part of the electorate. The electorate had with the mediæval duchy merely a political (not local or racial) connection.

The kingdom is somewhat of the form of a right-angled triangle, with the right angle in the n.w., and the longer side along the foot of the Erz-gebirge range, which sends its spurs n. over the s. half of the country, giving to that portion an almost mountainous character, while the n. half remains a flat or undulating plain. The whole country, except a small portion in the extreme e. which belongs to the Oder basin and is watered by the Neisse, is drained by the Elbe (wholly navigable in S.) and its tributaries the Muglitz, Wilde-Weisseritz, Trubsch, Mulde, and White Elster, on the w.; and the Wessnitz, Black Elster, and Spree, on the e. From the point where the Elbe bursts through the Erz-gebirge chain to within about 8 m. of Dresden, it traverses a district rich in picturesque scenery, to which the not very appropriate name *Saxon Switzerland* has been given. This district, averaging about 24 m. long by 23 broad, is an elevated plateau of coarse crumbling sandstone (much resembling the English greensand); and though destitute of the perpetually snow-clad mountains, glaciers, serrated ridges, and escarpèd peaks which give a lofty grandeur to its namesake, it can boast of features equally peculiar and strikingly romantic. From the soft nature of the rock, it has yielded freely to the action of the mountain rills, which rise from the hills on its e. and w. borders, and converge to the Elbe, and is cut up in all directions by deep narrow gorges (so symmetrical in their formation as to resemble artificial lanes), the constantly deepening beds of these mountain torrents, which here form cascades, there sullenly glide through deep vales bordered by rocks of fantastic forms, or by steep rugged slopes thickly clad with trees. High above the level of the plateau rise towering rocks, some pyramidal or conical, others pillar-like, while a few taper almost to a point, and then bulge out at the top; all clearly testifying to the agency by which they have been produced. The mediæval knights took advantage of these curious results of nature's so-called freaks, to erect castles upon the summits of some of them, several of these castles still exist, and one of them, Königstein, is almost the only virgin fortress in Europe. The most remarkable of these peaks are Königstein (864 ft.), Lilienstein (1,254 ft.), the Bastei (600 ft.), Nonnenstein, Jungfernsprung, and seven others, each having its group of traditional gnomes and kobolds. The

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Lakes of S. are unimportant, and the only canals are those between the mines and ore-mills.

*Climate, Soil, Products, etc.*—The climate is healthful, and on the whole temperate, though occasionally severe in the s.w. districts. Of the whole surface, more than one-half is arable, nearly one-third is in forest, about one-ninth in meadow. The arable land has long been in high cultivation, as is the case with the whole of Upper S. (see *History*); yet notwithstanding this, and its extreme fertility, the product is hardly sufficient for the dense population (441 to the Eng. sq. m.). Agricultural products consist of the usual cereals and leguminous plants, with rape, buckwheat, hops, flax, and potatoes, and all kinds of fruits suited to the climate. The forests, the largest of which are in the Voigt-land (s.w. corner of Zwickau) and along the n. slopes of the Erz-gebirge, supply excellent timber in such abundance as to render them one of the great sources of industry and wealth. The rearing of cattle is an important employment in the mountainous districts of the s.w. Sheep, for which S. was formerly famous, have been less generally reared of late years; though, from the introduction of merinos, and increased care in breeding and rearing, the quality of the wool has much improved, and at the present day it has a high place in the markets of the world. Minerals are another great source of national wealth, the ore being both rich and abundant, and the processes of excavation and smelting highly developed. Most of the mines belong to the crown; they are in Zwickau and Dresden, mostly on or near the n. slope of the Erz-gebirge. The mineral wealth includes silver, tin, iron, cobalt, bismuth, zinc, lead, nickel, arsenic, antimony, and other metals; besides coal, marble, porcelain-earth, vitriol, and various gems. In 1883 there were in operation 150 out of 236 metallic mines, which employed 8,615 hands, and yielded products valued at \$1,400,652; and 166 coal mines, with 20,136 hands and 4,088,484 tons output, valued at \$7,342,794. There were also in operation 266 sandstone quarries, mostly on the hills of the Elbe, which employed nearly 2,000 hands. Precious stones are found in the S. mountains; but there are no salt mines.

*Manufactures, Commerce, etc.*—Manufacturing industry has been greatly developed, and several branches have been brought near perfection. This labor employs nearly three fifths of the whole people. The oldest manufacture is that of linen, which at present employs more than 16,000 looms; but it is eclipsed by the cotton-spinning and weaving, which is the most important Saxon industry, has its chief seats at Chemnitz, Frankenberg, Zschoppau, Folkland, and Lausitz, and gives work to more than 150 spinning-mills. The woolen manufactures also are extensive. Broadcloth, thread, merinos, silks, mixed silk and woolen wares, etc., are produced in considerable quantity and of excellent quality; the muslin-de-laines being still preferred by many to those of England and France, while the laces and embroideries preserve their ancient well-won reputation. Saxon pottery and porcelain have long been famous.

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The chief centres of manufacturing industry are in Bautzen and in the mountainous country n. of the Erz-gebirge. This extension of manufacture, combined with deficient supply of home-grown articles of consumption, demands an extensive foreign commerce, carried on chiefly through the medium of the great fairs of Leipzig (q.v.). The chief imports are corn, wine, salt (not found in S., though common in Prussian Saxony), cotton, silk, flax, hemp, wool, coffee, tea, etc. The country is well provided with roads, railways, and lines of telegraph.

*Government, Religion, Education, Revenue, etc.*—The govt. of this interesting country—whose history leaves on the mind a firm sense both of past ages and of present activity—is a limited monarchy, hereditary in the Albertine line, and carried on according to the constitution of 1831, modified by changes 1849, 51, 60, 61, 68, and 74. By the electoral law 1868, the first of the two chambers which constitute the legislature consists of the princes of the royal family, certain nobles, representatives of the Luth. and Rom. Cath. churches, the chief proprietors, representatives of the universities, and the burgomasters of the eight principal towns. The second chamber comprises 35 deputies from the towns, and 45 from the rural communes. The supreme administration is by six ministers (of Justice, Finance, the Interior, War, Religion and Education, and Foreign Affairs). The established religion is the Lutheran, though the reigning family, since the time of Fr. Augustus I., have been Rom. Cath. The church dept. must, so long as the reigning family remains Rom. Cath., be administered by a member of the established church. In 1895 there were 3,954,132 Prot.; 197,005 Cath.; 22,214 other Chris.; 12,416 Jews; and 369 of other relig. The pop. of S. is far from purely Ger.; in 1885, there still were more than 49,000 who spoke Wendish. S. has more than 3,000 elementary schools, 17 gymnasia, and 34 *real-schulen*; the univ. is at Leipzig. In 1901-2 the revenue and expenditure were 97,799,960 marks; debt 980,136,200 marks (largely for railways). The Saxon troops form the 12th *corps d'armée* of the German empire. S. has a war ministry of its own; but after the war of 1866, S. paid the penalty of her opposition to Prussia by being compelled to make over to the king of Prussia the supreme military command of the Saxon army, the right to garrison the fortress of Königstein, the management of the postal, railway, and telegraphic systems, and the charge of the diplomatic representation of S. abroad. As a member of the German empire, S. has four votes in the federal council, and has right to send 23 deputies to the diet.

*History of the Great Duchy of Lower Saxony, and of the Ascanian Electorate of Upper Saxony.*—After the final conquest of the Saxons by Charlemagne, they became one of the components of the German empire; but their country did not correspond to what is now known as S. It included the most of the country between the Elbe, the Harz Mountains, the Rhine, and Friesland; and, 850, was

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erected into a dukedom, with Lubeck for its cap., and ruled by hereditary princes. Ludolf, first duke, is said to have been great-grandson of Wittekind, but nothing is certainly known of his ancestry. His second son, Otho the Illustrious (ruled 880–912), was the most distinguished of the German princes; he fought valiantly against the Normans, and, on the extinction of the Carlovingian dynasty (911), refused the crown of Germany unanimously offered him by the electors. His son Duke Henry (ruled 912–936), surnamed ‘the Fowler,’ obtained the throne (919), and commenced the Saxon line of German sovereigns, which was continued by Otho I. (q.v.), Otho II. (q.v.), Otho III. (q.v.), and Henry II., and ended 1024. Otho I. handed over the great duchy of S. to Hermann Billung 960, on condition of milit. service; and this family held it till 1106. Under the Billung dynasty, the prosperity of the country greatly increased, and Meissen, Thuringia, East S., in Lusatia, S. in the Northern Mark, Anhalt, Saltzwedel, and Slesvig, all were dependent on the Saxon duke. A portion of S. had, however, been reserved by Emperor Otho I., for his nephew Bruno, who founded a lordship of Saxony-Brunswick; and, in the middle of the 11th c., a duchy of ‘Saxony on the Weser’ also was founded; but both of these (united by marriage 1090 or 1096) came (1113) by marriage to Count Lothar of Supplinburg, who was invested also (1106) with the great duchy of S., now more extensive than ever before, stretching from the Unstrut, in Gotha, to the Eider, and from the Rhine to Pomerania. After Lothar’s accession to the imperial throne 1125, he handed over (1127) the duchy to his son-in-law, Henry the Proud, the Guelphic Duke of Bavaria, who was thus the ruler of more than half of Germany; but this overgrown dominion did not long continue, for under his son, Henry the Lion (q.v.), it was wrested (1180) from the House of Guelph, Bavaria being given to the House of Wittelsbach; E. Saxony created an electorate, and given to Bernhard of Ascania; Brunswick and Luneburg mostly restored to Henry’s son; while the numerous and powerful bishops of n. Germany divided among themselves Westphalia, Oldenburg, and many portions of Luneburg and Brunswick; Mecklenburg and Holstein became independent, and the Saxon palatinate in Thuringia went to the Landgraf Ludwig. S., now shorn of its greatness, consisted chiefly of what is now Prussian S., a few districts separated from Brandenburg, and Saxe-Lauenburg, the last being the only portion of the great duchy of S., or *Lower Saxony*, as it is called, which retained the name. Wittenberg was cap. of the new duchy. S. was diminished 1211 by the separation of Anhalt as a principality; and 1260, it was permanently divided into two portions, *Saxe-Lauenburg* and *Saxe-Wittenberg*, to the latter of which the electoral dignity remained, and to which, on subsequent dispute between the two branches, it was confirmed by the celebrated Golden Bull (1356). The Ascanian line became extinct 1422 with Duke Albert III., and the duchy then passed to Frederick the Warlike,

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Markgraf of Misnia, and Landgraf of Thuringia, who was invested with it by Emperor Sigismund 1423. His possessions consisted of Thuringia, the present kingdom of S., Prussian S., in fact, the whole of *Upper Saxony* except Anhalt.

*History of the Country now known as Saxony.*—The earliest inhabitants of Upper S., since the Christian era, were the Hermunduri (see THURINGIA); and on the destruction of the great Thuringian kingdom in the beginning of the 6th c., their settlements were taken possession of by the Sorbs, a Slavic race, who practiced agriculture and cattle-breeding. The Carlovingian rulers, dissatisfied with the ingress of those non-German tribes, erected ‘marks’ to bar their progress; and Duke Otho the Illustrious of S., and his celebrated son, Henry the Fowler, warred against them. The latter—subduing the Heveller, the Daleminzer, and the Miltzer—founded in their country the marks of Brandenburg (q.v.), Misnia (Meissen), and Lusatia (Lausitz), and planted colonies of Germans among the Sorbs.—In 1090, the mark was bestowed on the House of Wettin (supposed off-shoot of the race of Wittekind), and was confirmed as an hereditary possession to that family 1127; and the markgraf, Henry the Illustrious (ruled 1221–88), whose mother was heiress to the landgrafen of Thuringia with its appendages, combined the whole into a powerful state. Business, commerce, and mining industry flourished; great roads for commercial purposes were constructed throughout the country, and the Leipzig fairs were established; and, notwithstanding much internal discord, and frequent partitions of S., its prosperity increased.—At last, FREDERICK THE WARLIKE (ruled 1381–1428) succeeded in uniting the severed portions of S., to which were added, by purchase and marriage, various districts in Francenia; and 1423 the electorate of S. (see above). The Saxon elector was now one of the most powerful princes of Germany; but the fatal practice of subdividing the father’s territories among his sons continued, and during the reign of the Elector FREDERICK THE MILD (ruled 1428–64), whose brother William had obtained Thuringia, a civil war broke out, and was carried on for years.—ERNEST (ruled 1464–86) and ALBERT (ruled 1464–1500), sons of Frederick, in accordance with the will of their father, reigned conjointly over the hereditary domains of the family (the duchy of S., with the electoral dignity, being reserved always to the eldest) till the death of their uncle (1485), when Ernest obtained Thuringia, and Albert Meissen, while Osterland was equally divided between them, Ernest, founder of the *Ernestine*, which was also the *elder or electoral line*, was succeeded by his son, FREDERICK THE WISE (ruled 1486–1525), who favored the Reformation, and firmly supported and protected Luther against the overwhelming power of the Rom. Cath party, which he was enabled to do by his personal influence with Emperors Maximilian and Charles V.—His brother and successor, JOHN THE CONSTANT (ruled 1525–32), was still more a partizan of the new doctrines, as was also his son

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and successor, JOHN FREDERICK THE MAGNANIMOUS (ruled 1532-47); but the latter, by the defeat of Mühlberg (q.v.) (see SCHMALKALD), was forced to resign both his electoral dignity and his states.—Albert, founder of the *younger*, *ducal*, or *Albertine line*, was succeeded by his sons, GEORGE THE BEARDED (q.v.) (ruled 1500-39), a rabid Rom. Catholic, and HENRY THE PIous (ruled 1539-41), a no less zealous Protestant; after whom came the celebrated MAURICE (ruled 1541-47), who was a professed Protestant, but joined the Rom. Cath. party against the League of Schmalkald, forced the Prot. army to retreat from the Danube, and took possession of the estates of the Elector John Frederick, who, however, speedily drove him out, and took possession of ducal S. in his turn. After the rout of the Protestants at Mühlberg, Maurice received the electoral title (1547-53), and the greater portion of the estates of his vanquished cousin. But the arbitrary political measures and religious severities which were either instituted or promoted by the emperor induced Maurice to join the Protestants, and, by a sudden march on Innsbruck, he forced the emperor to agree to the peace of Passau. New tyrannical measures of the emperor caused him to look to an alliance with France, but the scheme was frustrated by his death, 1553, July 11, near Sievershausen, where two days before he had totally defeated the Markgraf Albert of Kulmbach, a secret agent of the emperor.—His brother, AUGUSTUS I. (q.v.) (ruled 1553-86), the first economist of the age, has left a memory dear to S., from the numerous excellent institutions which he established; he considerably increased his territories by purchase and otherwise, and restored Altenburg to the Ernestine line.—CHRISTIAN I. (ruled 1586-91), a weak prince, surrendered the reins of govt. to his chancellor, Crell, who was sacrificed, in the succeeding reign of CHRISTIAN II. (ruled 1591-1611), to the revenge of the offended nobility. Christian II. weakly neglected to assert his claims to Juliers, on the death of its last duke, and allowed it to become a prey to Brandenburg and the palatine House of Neuburg; but his brother, JOHN GEORGE I. (ruled 1611-56), in revenge for this spoliation, allied himself to Austria, and conquered Upper and Lower Lusatia and Silesia. Subsequently the good understanding between these powers was destroyed, and the elector allied himself with Gustavus Adolphus (1631), and took part in the Thirty Years' war. But on the death of Gustavus, the elector separated from the Swedes, and made a separate peace (1635) with Austria, by which he obtained Upper and Lower Lusatia, acquisitions confirmed by the general treaty of Westphalia (1648). This was the period of the electorate's greatest power.—His sons, JOHN GEORGE II. (ruled 1656-80), August, Christian, and Maurice, divided the estates, the three latter founding cadet lines, all of which became extinct before 1750.—The lives of his successors, JOHN GEORGE III. (ruled 1680-91) and JOHN GEORGE IV. (ruled 1691-94), are unimportant; but FREDERICK AUGUSTUS I. (or II.) (ruled 1694-1733) nearly ruined the hitherto prosperous

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electorate. Frederick Augustus had been chosen king of Poland; and his attempt, in company with the czar and the king of Denmark, to dismember Sweden, brought upon him and his two states the vengeance of the northern 'fire-king.' Poland was utterly devastated, and S. exhausted of money and troops. Besides, the king's habits were most extravagant; and to maintain his lavish magnificence, he was forced to sell important portions of territory.—FREDERICK AUGUSTUS II. (or III.) (ruled 1733–63), also king of Poland, took part in the war of the Austrian Succession (q.v.) against Maria Theresa; but finding the treaty of Berlin (1742) not so satisfactory for himself as he expected, he joined the empress 1745. The country was atrociously ravaged during the Seven Years' War (q.v.), and a long time elapsed before it recovered its peace and prosperity.—FREDERICK CHRISTIAN (ruled 1763) and FREDERICK AUGUSTUS I. (ruled 1763–1827, king from 1806), labored zealously for the good of their subjects; and under the long reign of the latter, agricultural, manufacturing, and industrial enterprise rapidly advanced. In spite of his love for peace the elector was led into the quarrel respecting the Bavarian Succession (q.v.); but he refused the crown of Poland 1791, and declined to take part in the convention of Pillnitz, though he joined the Prussian confederation of German princes, and had an army of 22,000 Saxons at the battle of Jena. But the pressure of the French compelled him to join the Confederation of the Rhine 1806, and from this time his army fought side by side with the French. He obtained the union to S. of the duchy of Warsaw (see POLAND); but fearing that the disasters of the French, 1812, would be fatal to their supremacy and to the interests of S., he withdrew to Bavaria, and thence to Prague, renounced the duchy of Warsaw, and made every attempt to come to amicable terms with the allies. But he was again compelled to join the French, between the battle of Lutzen (1813, May 2) and that of Leipzig (Oct. 16–19), after which he became prisoner of the allies, and his army was joined to theirs. For his support of Napoleon, he was deprived of the greater portion of S., which was handed over to Prussia, but he retained the title King, conferred on him 1806. The rest of his reign was occupied with internal reforms.—ANTONY (reigned 1827–36) reformed the entire legislation of the country, and granted a liberal constitution, being urged thereto by a popular outbreak in the autumn of 1831. The constitution was proclaimed 1831, Sep. 4; and the state's representatives first assembled 1833, Jan. 27.—His nephew, FREDERICK AUGUSTUS II. (reigned 1836–54), who had been regent for several years, succeeded him, and, though favorable to constitutionalism, he was unable to obtain the smooth and harmonious working of the new system. In 1843 violent contests began, accompanied by occasional riots in the principal towns, on the subject of the liberty of the press, and the publicity of legal proceedings. Sometimes the constitutionalists, sometimes their opponents, gained supremacy, and for a long time the two parties counteracted each other. Toward

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the close of the king's reign, he was a mere tool in the hands of the reactionary party, headed by his brother JOHN, who succeeded 1854. John, however, supported constitutionalism, and established courts of justice throughout the kingdom. For the hostile attitude assumed by S. toward Prussia before 1866, and for its subsequent history, see GERMANY.

SAXONY, *säks'o-ni*, PRUSSIAN: most westerly undetached province of Prussia; bounded e. and n.e. by the province of Brandenburg; 9,751 sq. m. Pop. (1880) 2,312,007; of whom, Prot. 2,154,663, Rom. Cath. 145,518, Jews 6,700; (1900) 2,832,616. The w. districts are occupied by the Harz Mts., and the peak of the Brocken (3,738 ft. high) is the chief elevation. The greater portion of the surface, however, is level, and slopes toward the n., in which direction flow the principal rivers—the Elbe, with its tributaries Saale and Mulde. The climate is mild and healthful, and the soil very fertile and well cultivated. More than the half of the area is under crop, and nearly  $\frac{2}{3}$  uncultivated, and in water and wood. The *Goldene Aue*, in the s.w., is especially famous for fertility. Manufacturing industry is very active, and there are spinning, weaving, and oil mills in great numbers. The cap. is Magdeburg (q.v.). The larger portion of Prussian S. (7,911 sq. m.) was detached from the kingdom of Saxony, and ceded to Prussia, by decree of the Congress of Vienna, 1815. See SAXONY.

SAXTON, *säks'ton*, JOSEPH: 1799, Mar. 22—1873, Oct. 26; b. Huntingdon, Penn. After attending the common schools, he served an apprenticeship at watch-making, showed great mechanical ingenuity, removed to Philadelphia 1817, studied drawing and engraving, invented a machine for cutting the teeth of watch-wheels, made improvements in the construction of clocks, and made a clock which for a long time was in the tower of Independence Hall. He was in England 1828–37, became acquainted with Faraday and other noted scientists, made several important inventions, including a locomotive differential pulley, was offered the charge of the machinery used for printing the Bank of England notes, but returned to the United States to take an important position in the Mint at Philadelphia. He had charge of constructing the weights and measures to be used by the states for maintaining a uniform standard, and of the balances used in testing the standard weights of the country. He was a member of the Amer. Philos. Sec. and of the National Acad. of Sciences. He died at Washington.

SAXTON, RUFUS: soldier: b. Greenfield, Mass., 1824, Oct. 19. He studied at Deerfield Acad., graduated from West Point 1849, was employed with a surveying party in the Rocky Mountain region 1853–4 and in the coast survey 1855–59, in the latter year was appointed instructor at West Point, and was afterward acting quartermaster at St. Louis. In the civil war he was in w. Virginia with Gen. McClellan, quartermaster at Port Royal

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with Gen. Thomas W. Sherman, was for a short time in command at Harper's Ferry, was milit. gov. of the dept. of the south 1862-65, quartermaster with rank of major 1866, and was stationed at Louisville in control of the Jeffersonville dept. 1883-88. He was promoted brig. gen. of vols. 1862, brevetted brig. gen. U. S. army 1865, became lieut. col. and deputy quartermaster-gen. 1872, and 10 years afterward was made col. and assistant quartermaster-general.

SAY, v. *sū* [A.S. *secgan*; Icel. *segia*; Ger. *sagen*, to say]: to speak in words; to declare; to tell; to state; to answer or reply; to pronounce and not sing; to repeat: N. speech; what one has to say: IMPERA. tell me; speak. SAY'ING, imp.: N. something said or declared; a proverbial expression. SAID, pp. pt. *sēd*, did say. SAYER, n. *sū'er*, one who says. IT IS SAID, or THEY SAY, it is commonly reported; people assert or maintain. HE SAYS, *sēz*, his opinion is this; it is reported by him. THAT IS TO SAY, in other words; otherwise.—SYN. of 'say, v.': to speak; tell; utter; allege; repeat; rehearse; pronounce; relate; declare; recite; announce;—of 'saying, n.': proverb; aphorism; apothegm; axiom; maxim; byword; saw; adage; truism; principle; declaration; speech.

SAY, n. *sā* [OF. *saie*—from mid. L. *sagum*, a kind of cloth—from L. *sagum*; Gr. *sagos*, a coarse cloak]: in *OE.*, a kind of serge; silk. SAIES, n. plu. *sāz*, in *OE.*, different kinds of say.

SAY, n. *sā*: in *OE.*, for *assay*, which see: in the *OE.* phrase *to taste the say*—that is, to taste the wine before it is presented—*say* = *assay*, to try, to prove.

SAY, *sā*, JEAN BAPTISTE: French economist: 1767, Jan. 5—1832, Nov. 16; b. Lyon. Being intended by his father for a commercial career, he passed a part of his youth in England; and on his return to France obtained a situation in a life insurance co., about which time he made his first acquaintance with the works of Adam Smith. During the Revolution, he was for a time sec. to Clavière, minister of finance; and 1794 to 1800 edited a journal, *La Décade*, in which he expounded with great effect the views of Smith. Already S. had acquired reputation as a clear and forcible writer by his *Traité d'Économie Politique, ou Simple Exposé de la Manière dont se forment, se distribuent et se consomment les Richesses* (Par. 1803), and other works. Called to the tribunate 1799, Nov., he was not slow to express his disapprobation of the arbitrary tendencies of the new consular govt., and 1804 he ceased to be a member of a body that had become a mere tool in the hands of Bonaparte. Under the despotism of the empire, S. was forced into private life, and betook himself to industrial pursuits, establishing (with his son) at Auchy a large spinning-mill, which soon employed 500 workmen; and when Bonaparte fell, S. found himself at the head of the economical and commercial movement that marked the epoch. In 1814 the second ed. of his now celebrated *Traité* appeared, dedicated to Emperor

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Alexander, who had long called himself his 'pupil,' and in the same year the French govt. sent him to England to study the economical condition of that country. In 1819, a new chair, of *Économie Industrielle*, was created for him at the *Conservatoire des Arts et Métiers*; and S. added to his influence and his popularity by the lucidity, grace, and intensity of conviction evinced in his lectures. In 1831 he was appointed prof. of polit. economy at the *Collège de France*, but died the following year. Although strictly a follower of Adam Smith, S. is an independent thinker. Ricardo speaks of his works as containing 'several accurate, original, and profound discussions.' He was the first to teach Frenchmen to consider rationally such questions as customs-duties, the currency, public credit, the colonies, and taxation; though the brilliant socialistic theorizers say that he is not an *économiste spiritualiste*. He is open to criticism, as are so many other economists, for a tendency to consider the *material* elements as almost solely constituting social science. The moral forces are not prominently regarded; government he seeks to reduce to its lowest terms and its most limited sphere—showing almost a desire to eliminate it altogether. Thus, his philosophy lacks breadth and strength. But on many practical points, e.g., the relations of capital to production, his suggestions have had great value. Besides his *chef-d'œuvre* above mentioned, S. wrote (among other works): *De l'Angleterre et des Anglais* (Par. 1812); *Catéchisme d'Économie Politique* (Par. 1815); *Lettres à Malthus* (Par. 1820); *Cours Complet d'Économie Politique* (Par. 1828-30); and *Mélanges et Correspondance* (Par. 1833). His principal writings form vols. 9-12 in Guillaumin's *Collection des Économistes*.

SAY, JEAN BAPTISTE LÉON: financier and economist: b. Paris, 1826, June 6; grandson of Jean Baptiste S., political economist. At an early age he contributed articles on economic questions to the *Journal des Débats*, of which journal he became principal owner. Under the empire, S. bitterly attacked the financial administration of Baron Haussmann, prefect of the Seine. He heartily approved the republic after the fall of Emperor Napoleon III., and during the siege of Paris was active, as administrator of the railroads of the north, in provisioning the city. He was elected to the national assembly 1871, and the same year was appointed prefect of the Seine. He was minister of finance under Thiers 1872-3, and repeatedly afterward held the same post in the administrations of Dufaure, Jules Simon, Waddington, and Freycinet. He was senator 1875-89; appointed ambassador to negotiate a treaty of commerce with England 1880, April; but in May was chosen pres. of the senate. After the founding of the republic, he acted with the left centre, or moderate republicans. His writings on financial subjects are regarded as of very high authority: among his published works are: *Theory of Foreign Exchanges* (transl. into English); *Le Socialisme d'État*; *Les Finances de la France*. He is member of the French Academy. He d. 1896, Apr. 21.

## SAYBROOK—SAYRE.

**SAYBROOK**, *sā'brūk*: town, Middlesex co., Conn., where the Connecticut river empties into Long Island Sound; on the Shore Line, and the Valley divisions of the New York New Haven and Hartford railroad; 32 m. e. of New Haven, 19 m. w. of New London. It was the original seat of Yale College 1701-07, and the place where the famous Saybrook Platform (q.v.) of the Congl. churches was framed 1708. Seabury Institute (Prot. Episc.) is located here. The town is a noted summer-resort. There are several small villages. Pop. (1890) 1,484; (1900) 1,431.

**SAYBROOK PLATFORM**: system of faith and discipline adopted at a synod of Congl. churches convened at Saybrook, Conn., 1708, by order of the colonial legislature, and with special purpose to unite and strengthen the churches. It consisted of the Savoy Confession (q.v.), the Heads of Agreement adopted by the Presbyterians and Congregationalists of England, and certain Articles for the Administration of Church Discipline, the chief features of which were consociations of pastors and churches, associations of ministers, and standing councils. Though no authority existed to impose this platform as law, the Conn. churches largely conformed to its plan of organization, which, in form, has become entirely obsolete by the general adoption of the so-called conference system, bringing pastors and people together in district conferences, which are represented in annual state conferences, and these in a triennial national council. Where ministerial associations exist, they assume the character of professional gatherings simply.—The S. P. shows some mixed tendencies: in a few points it looks toward a polity and a doctrine less simple and less free than accord with the recognized principles of Congregationalism. Such elements—the product of a confused and unsettled time—have been gradually and quietly, but fully, discarded.

**SAYCE**, *sās*, ARCHIBALD HENRY, D.D., LL.D.: philologist: b. near Bristol, Eng., 1846, Sep. 25. He became scholar of Queen's Coll., Oxford, 1865, fellow 1869, tutor 1870; and was ordained priest 1871. He was deputy prof. of comparative philol. 1876-90, when he resigned. S. is among the foremost of living philologists, orientalists, and antiquarians. His published works are very numerous, and he is a frequent contributor to literary journals. Among his writings are: *Outlines of Accadian Grammar*; *Assyrian Grammar*; *Astron. and Astrol. of the Babylonians*; *Karian Inscriptions*; *Introduction to Science of Language*; *Anc. Empires of the East*; *Life and Times of Isaiah*; *The Hittites*; *Fresh Light from the Anc. Monuments*.

**SAYRE**, *sär*, STEPHEN: 1734-1818, Sep. 27; b. on Long Island, N. Y. He graduated from Princeton College 1757, entered mercantile and banking business in England, was prominent in political affairs, and was sheriff of London 1774. His expressions of sympathy with the Amer. colonies led to his commitment to the Tower on a charge of high treason, and to the loss of his fortune. On his release, he came to this country, was private sec. of Benjamin

## SBIRRI—SCABBARD.

Franklin, and afterward presented, with great success, the cause of the colonies in various European cities. He died in Virginia.

SBIRRI, n. plu. *sbir'rē* [It.]: in *Italy*, officers of police in the pope's dominions.

SCAB, n. *skūb* [L. *scabīēs*; It. *scabbia*; Dan. and Sw. *skub*; Ger. *schabe*, scab, scurf; Dut. *schabben*, to rub, to scratch; Bret. *skraba*, to scratch]: crust formed over a sore in healing; a disease in sheep resembling itch, or mange (see below): V. to become covered with a scab; to grow scabby. SCABBING, imp.: N. a flaw in metal-castings caused by sand rising up through the hot metal to the surface. SCABBED pp. *skūbd*: ADJ. abounding with scabs; mean; paltry. SCABBEDNESS, n. *skū'bēd-nēs*, the state of being scabbed. SCAB'BY, a. -*bī*, covered or affected with scabs; vile; mean. SCAB'BINESS, n. -*bī-nēs*, the state or quality of being scabby. SCAB'BILY, ad. -*bīlī*. SCABIES, n. *skū'bī-ēz* [L.]: the scientific name for the itch. SCA'BIOUS, a. -*ūs*, or SCA'BIOSE, a. -*ōs*, scabby; itchy; consisting of scabs. SCA'BIOUS, n. a plant of the genus *Scabiōsā*, ord. *Dip'sacācēæ*.

SCAB, in Sheep: disease, like itch in man, or mange in horses or dogs, depending on the irritation of a minute acarus, which burrows in the skin, especially if dirty and scurfy; causing much itching, roughness, and baldness. The parasite readily adheres to hurdles, trees, or other objects against which the affected sheep happen to rub themselves, and hence is apt to be transferred to the skins of sound sheep. Chief among approved remedies are diluted mercurial ointments, tobacco-water, turpentine and oil, and arsenical solutions, such as are used for sheep-dipping. One of the best and simplest applications consists of a pound each of common salt and coarse tobacco, boiled half an hour in about a gallon of water; to this are added two drams of corrosive sublimate; and the mixture diluted until it measures three gallons. For each sheep, a pint of this mixture should be carefully applied, from a narrow-necked bottle, along the back, and to any other scurfy itchy parts. A second dressing, after an interval of a week, will generally effect a cure.

SCABBARD, n. *skū'bērd* [O.E. *scaubert*, a scabbard—from OF. *escaubert* or *escauber*, the vagina]: sheath for a sword or bayonet, at once to render the weapon harmless when not in use, and to protect it from damp. It is usually of black leather, tipped, mouthed, and ringed with metal. Some cavalry wear scabbards of steel, which better sustain the friction against the horse's accoutrements, but are objectionable from noisiness, and consequent impossibility of surprising an enemy. The sword-S. is suspended to the belt by two rings; the bayonet-S. hooks into a frog in connection with the waist-belt. SCAB'BARD, v. to put into a scabbard or sheath. SCAB'BARDING, imp. SCAB'BARDED, pp.

## SCABBARD-FISH—SCAD.

SCAB'BARD FISH (*Lepidopus caudatus*): fish of long, compressed form and silvery lustre, found on the coasts of Europe and the Gulf of California; also in New Zealand, where it is called the Frost-fish, and esteemed as food. It is much like another species, *Trichiurus lepturus*, the Cutlass-fish, known in Fla. by the pre-occupied name Sword-fish, in New Orleans and Ga. as the Silver-eel, in Texas as the Sabre-fish, and found as far n. rarely as Salem, Mass., and s. to Brazil; it is ordinarily 25–30 in. long, but in the W. Indies 4–5 ft. By some it is thought to be identical with *T. haumela* of the Indian Ocean and the Pacific.

SCABBLE, v. *skă'b'l* [etym. doubtful]: to dress, as a stone, with a fine ax or broad chisel.

SCABELLUM, n. *skā-bĕl'ūm*, SCABELLA, n. pl. -la [L. dim. of *scamnum*, a bench, a footstool]: ancient musical instrument of the nature of a castanet, fastened to the foot, and struck together by it as a rhythmical accompaniment to other music; kind of pedestal to support busts.

SCA'BIES: see ITCH.

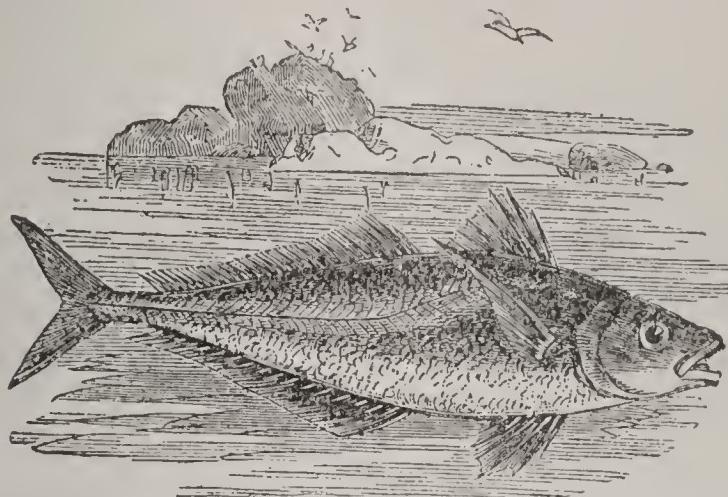
SCABIOUS, *skā'bī-ūs* (*Scabiosa*): extensive genus of herbaceous plants, exclusively natives of the e. hemisphere; of the nat. order *Dipsacaceæ*. See TEASEL. The flowers are collected in terminal heads, surrounded by a many-leaved involucre, like those of the order *Compositæ*. The DEVIL'S-BIT S. (*S. succisa*) has great astringency, but no important medicinal virtues, though it was formerly supposed efficacious in all scaly eruptions—hence the name S., from Lat. *scabies*, leprosy. The end of the root appears as if abruptly bitten off, and the superstition of the middle ages regarded it as bitten off by the devil, in anger at its usefulness to mankind. The SWEET S. (*S. atropurpurea*) is a fragrant garden-flower, supposed native of India; it is known in American gardens as the Mourning Bride.

SCABROUS, a. *skā'brūs* [F. *scabreux*, scabrous—from mid. L. *scabrosus*; L. *scaber*, rough—from *scabo*, I scratch: It. *scabroso*]: in bot., rough; having the surface rough to the touch, arising from a covering of very stiff short hairs scarcely visible; harsh. SCA'BROUSLY, ad. -*lī*. SCA'BROUNESS, n. -*nēs*, state or quality of being scabrous; roughness.

SCAD, n. *skad* [AS. *sceadda*, a kind of fish: Gael. *sgalan*, a herring]. (*Trachurus saurus*): carangoid fish, sometimes called *Horse Mackerel*, because of its resemblance to the mackerel, and its comparative coarseness. It is 12 to 16 inches long, of dusky olive color, changing to resplendent green, waved with a bluish gloss, head and lower parts silvery, throat black. There are two small free spines in front of the anal fin. The species of this genus are very numerous, and the name S. is applied to any of them. It is common on s.w. coasts of England, sometimes appearing in immense shoals, pursuing the fry of herring or similar prey, and the multitudes have sometimes been so great and so crowded together, that they could be lifted out of the sea by buckets, and overloaded nets have been torn

## SCAFELL—SCAGLIA.

to pieces by them. The S. has something of the mackerel flavor. Although not much cared for when fresh, it is often salted, and in that state is esteemed as an article of food. It is rare on the s. Atlantic and the Pacific coasts of N. America.—In England, S. appears to have been a name also for the Shad: in Scotland, it sometimes denotes the Ray.



Scad (*Caranx trachurus*).

SCAFELL, *skaw'fēl*: double-peaked mountain in Cumberland, England, on the Westmoreland border, 13 m. s.s.w. of Keswick; a chief feature in the scenery of the Lake Country, in the heart of which it stands. Of its two peaks, the higher rises 3,229 ft., the other 3,092 feet.

SCAFFOLD, n. *skūf'fōld* [OF. *escafaut*; Sp. and It. *ca-tafalco*; Prov. *cadafalc*, a scaffold—from Prov. and O.Sp. *catar* (L. *captūrē*, to strive after, to observe), to look, to see, and It. *palco*, a stage] a gallery, stage, or platform of timber for a temporary purpose, as in building; an erection for an execution: V. to furnish as with a scaffold; to sustain; to support. SCAFFOLDING, imp.: N. the erection of timber-work, usually supported on upright poles, for the use of workmen in carrying on building operations; the materials; that which sustains. SCAFFOLDED, pp. BROUGHT TO THE SCAFFOLD, put to death or executed.

SCAGLIA, n. *skūl'yū* [It. *scaglia*, a scale, a chip of marble or stone]: reddish variety of chalk, an Italian calcareous rock containing nodules and layers of flint. SCAGLIOLA, n. *skūl-yō li* [It. *scagliuola*]: composition of gypsum, Flanders glue, isinglass, etc., colored with any of the earthy and sometimes with the chemical colors, to resemble the natural *scaglia* limestone, and in successful imitation of the more costly kinds of marble. It is spread as a plaster over the surface intended to represent marble; and while still soft, pieces of fibrous gypsum, marble, alabaster, and other soft but ornamental stones, are pressed into it, and made level with the surface. When the composition is set hard, it is rubbed down, and polished with the ordinary stone polishing materials, which give it a very fine gloss. This kind of work is only for interiors, because scagliola will not bear long exposure to damp; but its lightness and ease of application to walls, pillars, pilasters, and even cornices make it a useful decoration.

## SCALA—SCALD.

SCALA, *skā'lā*, DELLA: prominent Italian family which ruled Verona 1260–1389. The dynasty was founded by Mastino I., who died by violence 19 years later. The wisest and best representative of the house was Can Grande (d. 1329), friend and patron of Dante. In the early part of the rule of this family Verona increased in size and power, and the arts were in a flourishing condition; but toward its close, owing to war with neighboring cities and the inefficiency of the rulers, it greatly declined.

SCALADE n. *skā-lād'*, or SCALADO, n. *skā-lā'dō*: usual spelling ESCALADE, which see.

SCALA NOVA, *skā'lā nō'vā*, or SCA'LA NUO'VA, or NEW EPH'ESUS: seaport of Asiatic Turkey, on an eminence at the head of the Gulf of S. N., 40 m. s. of Smyrna. The ruins of the ancient city of Ephesus (q.v.) are in the vicinity. An important export-trade is carried on. The Gulf of S. N., confined on the s. by the island of Samos, is 40 m. long and about 20 m. broad.—Pop. estimated 7,000 to 10,000.

SCALAR, a. *skā'lér* [L. *scalaris*, pertaining to a flight of steps]: in *philos.* (of a quantity), not involving direction, as the volume of a figure or the mass of a body.

SCALARIFORM, a. *skā-lár'i-fawrm* [L. *scalāris*, ladder-like—from *scala*, a ladder; *forma*, a shape]: ladder-shaped: in *bot.*, applied to vessels showing a ladder-like pattern, as seen in ferns.

SCALD, n. *skawld* [It. *scaldare*; F. *échauder*, to heat, to warm—from mid. L. *excaldārē*, to wash in warm water—from L. *ex*, out, very; *calidus*, hot: Dan. *skolde*; Sw. *skolla*; Gael. *sgall*, to scald]: injury to the body caused by hot water or other hot liquid (see BURNS): V. to painfully affect and injure the body by a hot liquid; to expose to the action of boiling water. SCALD'ING, imp.: ADJ. burning, as with a hot liquid; in *OE.*, hot; drying. SCALD'ED, pp. SCALDING-HOT, hot enough to scald. SCALDED CREAM, cream raised from milk by heat.

SCALD, a. *skawld* [see SCALL]: scabby; in *OE.*, paltry; sorry: N. in *OE.*, scurf on the head: see SCALL. SCALD-HEAD, (see RINGWORM: also SCALD-HEAD).

SCALD, or SKALD, n. *skāld* or *skawld* [Icel. *skald*: Dan. *skiald*: Ger. *skalde*; allied to *skill*—radical sense being to separate, thence to discern]: one of the anc. Scand. poets; among the *Norsemen*, a reciter and singer of poems, generally heroic—also spelled *scalder*, or *skalder*. SCALDA, or SKALDA, that part of the second Icelandic or old Norse Edda which treats of the art of poetry. SCALD'IC, a. -*ik*, pertaining to the anc. Scand. scalds or poets.—*Scald* was the name given specially to that class of poets who exercised their art (*Skáldskapr*) as a vocation requiring a learned education; i.e., knowledge of the construction of verse, and of the enigmatical imagery, roughly shaped out of obscure tradition, to which Scandinavian poets were prone. The great, if not the only aim of the Scaldic poetry was to celebrate the deeds of living warriors or of their ancestors. For this reason, princes attached Scalds to their courts, and

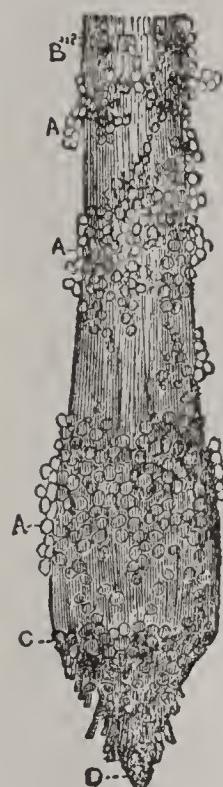
## SCALD-HEAD.

competed with each other, by munificent presents, for possession of the most skilful minstrels. Very few complete Scaldic poems are extant; but, on the other hand, the multitude of fragments preserved, partly in the younger Edda (q.v.), partly in the Sagas (q.v.), and the Heimskringla (q.v.), is very great. A manuscript of the younger Edda, belonging to the Univ. of Upsala (printed in *Historia Literaria Islandica* of Einarsen), contains a list of the most celebrated Icelandic and Norwegian Scalds of the 13th c., under the name *Skáldatal*. The songs relating to the religious and heroic traditions of the North, found in the Edda, go back to an earlier time, in which the class or school of 'Scalds,' properly so called, did not yet exist. The authorship of these primitive Eddaic songs is unknown; but they are the sources from which the 'Scalds' of later times drew much of their inspiration.

SCALD-HEAD [corruption probably of *Scaled Head*]: popular name of a fungous parasitic disease of the scalp

(and occasionally of the face and other parts), known in medical phraseology as *Favus*, *Tinea favosa*, and *Porrigo scutulata*. The primary seat of the parasite is in the lowest portion of the hair-follicles, outside the layer of epithelium which covers the root of the hair. The plant is, however, often found in cup-shaped depressions on the surface of the scalp, forming the yellow honeycomb-like masses which suggested the specific name *Favus* (honeycomb) for the disease. The honeycomb crust increases, preserving its circular form and depressed centre, till it occasionally reaches a diameter of nearly half an inch. These crusts commonly appear in crops, and may be either distinct or confluent. 'At a more advanced stage,' says Dr. Aitken, 'the epidermis disappears, and a viscid fluid is secreted in such abundance as to form one entire incrustation over the entire head; hence the *Porrigo larvalis*—mask or visor-like scald-head. The smell of the scab is peculiar, and has been compared to that of the urine of a cat, or of a cage in which mice have been kept. It is probably due to a species of alcoholic fermentation in connection with the vegetable growth.' The scab sometimes resembles a lupine, or a minute shield, rather than the cell of the honeycomb; hence the varieties of scald-head which have been described under the name *Porrigo lupinosa* and *Porrigo scutulata*.

The aim of treatment is to destroy the cryptogamic parasite, and to eradicate its germ. For this purpose, the head should poultices then applied till the scabs are



### Scald-head:

A, A, chains of sporules projecting beyond the edges of the hair; B, sporules between the fibres of the hair; C, D, broken-up root end of hair, with masses of sporules between the laminæ.

be shaved, and

## SCALE.

removed. Tar-ointment should then be applied, night and morning, the old ointment being washed off with soft soap and water before the fresh dose is laid on. Dr. Aitken states that in the early stage of the disease, in place of the preceding treatment, it is sometimes sufficient to cut the hair close, and to wash the affected parts, night and morning, with oil of turpentine. If the disease does not yield to these applications, the treatment for RINGWORM (q.v.) must be tried. See also TINEA.

SCALE, n. *skäl* [Dut. *schæle*, bark, crust; *schelle*, bark, skin: Dan. and Sw. *skal*, a shell: Ger. *schale*, a shell, a dish: Gael. *sgil*, to shell, to unhusk]: bark or crust; one of the thin plates that form the covering of many fish (see SCALES OF FISHES) and of serpents; any thin layer that can be separated; a lamina; the dish of a balance: V. to take off in thin pieces or layers; to pare the surface from; to peel off in scales; to weigh in a scale. SCA'LING, imp. SCALED, pp. *skäld*: ADJ. having scales like fishes. SCALER, n. *skä'lér*, one who scales. SCA'LY, a. -*lī*, abounding with scales; composed of scales lying over one another. SCALE'LESS, a. -*lēs*, destitute of scales. SCALE-BOARD, n. usually pronounced *skäb'erd*, a thin veneer of wood used to cover the surfaces of articles of furniture and the like. SCALES, n. plu. *skälz*, a balanced beam from whose extremities are suspended two dishes or saucers; a balance; in bot., rudimentary or metamorphosed leaves. SCALE-FERN, a fern so called from the scales at the back of the fronds. SCALE-INSECT: see COCCUS.

SCALE, n. *skäl* [L. *scala*, a ladder—from *scando*. I climb: F. *échelle*; OF. *eschele*, a ladder: It. *scala*, a ladder]: series of steps; anything marked in parts at equal distances; a graduated line to show distances as compared with a map; an instrument graduated or divided into parts, used for mathematical and philosophical purposes; a natural series of musical sounds (see SCALE, MUSICAL); a regular gradation; the natural order of progression on which any system of notation is based (see SCALES OF NOTATION); in *OE.*, act of storming by ladders: V. to ascend or climb a rocky precipice, as by a ladder. SCA'LING, imp. SCALED, pp. *skäld*. SCA'LABLE, a. -*lä-bl*, that may be scaled. SCALING-LADDER, a ladder used in time of war for mounting over the walls, etc., of a fortified place, made in parts  $7\frac{1}{2}$  and 12 feet long, and joined by placing the end of one into the socket of the other. THE SCALE OF AN INSTRUMENT, its compass. DIATONIC SCALE, the musical ladder of graduated steps and half-steps, or tones and semitones, containing five of the former and two of the latter. CHROMATIC SCALE, the musical ladder graduated by half-steps or semi-tones (see SCALE, MUSICAL).

## SCALE—SCALENT.

**SCALE, MUSICAL:** succession of notes arranged in the order of pitch, and comprising those sounds which may occur in a piece of music written in a given key. The ultimate criterion of what should constitute a musical scale is doubtless what gives most pleasure to a cultivated ear; but the sounds that please the ear are found to be those also that stand in certain simple mathematical relations to each other. Among the ancient Greeks, various different scales or *modes* were in use, of which six were generally enumerated—the Dorian, Phrygian, Lydian, Mixo-Lydian, Ionic, and Æolian. Excepting in the music of the Greek Church and of the Ambrosian Chant, modern musical feeling has rejected all of these but two, the Ionic and Æolian, the former of which is now known as the Major, and the latter the Minor Mode. In both modes, the S. consists of a series of seven steps leading from a given note, fixed on as the tonic or key-note, to its octave, which may be extended indefinitely up or down, so long as the sounds continue musical.

### Major Mode.



### Minor Mode.



For explanation of the principles on which these scales are founded, and of their derivation from the harmonic triad, see MUSIC. The major S. is derived from much simpler proportions than the minor. The minor S. requires to be modified by occasionally sharpening its sixth and seventh.

**SCALE, or SKAIL, v.** *skāl* [Icel. *skilia*, to separate: comp. Gael. *sgaoil*, to disperse]: in *Scot.*, to separate; to disperse; to scatter; to spill. **SCALING**, imp. **SCALED**, pp. *skāld*.

**SCALE-ARMOR:** small plates of steel riveted together in a manner resembling the scales of a fish. From the small size of the plates, it had considerable pliability, and was a favorite protection for the neck, in the form of a curtain hanging from the helmet. Scale-armor is obsolete, except, perhaps, among some eastern potentates.

**SCALENE, a.** *skā-lēn'* [L. *scalēnus*; Gr. *skalēnos*, oblique, unequal]: in *geom.*, applied to a triangle having three unequal sides.

**SCALENT, a.** *skā'l'ent*: in *geol.*, climbing; applied in the Appalachian strata to a series of rocks, equivalents of the Onondaga salt and water-lime groups of New York.

## SCALES.

SCALES of Fishes: thin plates forming the covering of many fish. They are divided by Agassiz, whose classification is generally adopted, into the *placoid*, *ganoid*, *ctenoid*, and *cycloid* forms. *Placoid* scales [from Gr. *plax*, broad plate] lie side by side without overlapping or imbricating. They are often elevated at the centre to form a strong projecting point. All the cartilaginous fishes, except the sturgeon, have placoid scales. *Ganoid* scales [from Gr. *ganos*, splendor] are covered with a fine enamel, and generally of rhomboidal form and imbricated: the sturgeon and the bony pike (*Lepidosteus*) have scales of this nature, but the finest examples are found in fossil fishes. *Ctenoid* scales [from

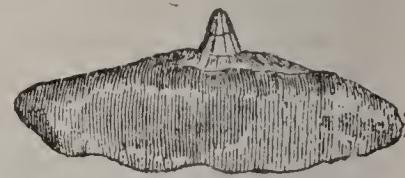


Fig. 1.—Placoid Scale.



Fig. 2.—Cycloid Scale.

*kleis*, a comb] are generally of rounded or oval form, with teeth or projections on their posterior margin, devoid of enamel, and with imbricated arrangement: the perch and many osseous fishes possess these scales. *Cycloid* scales [from Gr. *kyklos*, circle] consist of concentric layers of horn or bone, without spinous margins, and not covered by enamel: they are soft and flexible, present a variety of linear markings on their upper surface, and usually have an imbricated arrangement: the carp, herring, salmon, etc., possess these scales. In many cases, two kinds of scales occur in the same fish; in other cases, the different species of a single genus have different kinds.

For anatomical details regarding the structure and mode of development of scales, see Prof. Huxley's article 'Tegumentary Organs' in *Cyclopædia of Anatomy and Physiology*, and Prof. Williamson's Memoirs in *Philosophical Transactions*, 1849-52. In chemical composition, the scales of fishes approximate to the bones, except that they contain more organic matter. The brilliancy of tint of many fishes is due apparently to the phenomena of optical interference, rather than to the presence of coloring matter. For figures of Ctenoid and Ganoid Scales, see CTENOID FISHES: GANOID.

## SCALES OF NOTATION.

**SCALES OF NOTATION**, in Arithmetic: the various ‘radices’ which determine, as explained under **NOTATION** (q.v.), the form and digits of the number expressing any numerical quantity. Thus, the number 289, in the decimal or common system whose radix is 10, signifies 9 units, 8 tens, and 2 hundreds, or  $2 \times 10^2 + 8 \times 10 + 9$ . To express the same number in the quinary scale, e.g., we must group the 289 units into multiples and powers of 5; an operation which may be performed in either of two ways, as follows:

$\begin{array}{r} 5)289 \\ 5\cancel{57-4} \\ \hline 5)11-2-4 \\ \hline 2-1-2-4 \end{array}$	$\begin{array}{r} 289 \\ 10 \\ \hline 103 \text{ (taking in 8, and} \\ \text{carrying by 5)} \\ \hline 10 \\ \hline 2124 \end{array}$	$\begin{array}{r} 2124 \text{ (quinary)} \\ 5 \\ \hline 11 \text{ (carrying by 10)} \\ 5 \\ 57 \\ 5 \\ \hline 289 \end{array}$
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or 2124 (i.e.,  $2 \times 5^3 + 1 \times 5^2 + 2 \times 5 + 4$ ) in the quinary scale represents the same numerical quantity as 289 in the decimal scale. The following list shows the same numerical quantity according to the scales having for their radices the first 11 numbers after unity, and will partly indicate the advantages and disadvantages of each scale:

In the <i>binary</i> (radix 2) scale,	.	.	.	.	.	.	100,100,001
“ ternary ( “ 3)	“	“	“	“	“	“	101,201
“ quaternary ( “ 4)	“	“	“	“	“	“	10,201
“ quinary ( “ 5)	“	“	“	“	“	“	2,124
“ senary ( “ 6)	“	“	“	“	“	“	1,201
“ septenary ( “ 7)	“	“	“	“	“	“	562
“ octary ( “ 8)	“	“	“	“	“	“	441
“ nonary ( “ 9)	“	“	“	“	“	“	351
“ decimal ( “ 10)	“	“	“	“	“	“	289
“ undenary ( “ 11)	“	“	“	“	“	“	243
“ duodecimal ( “ 12)	“	“	“	“	“	“	201

It will be observed that the binary scale possesses only two symbols, 0 and 1, the ternary has 3, while the undenary would require a symbol in addition to the 9 digits and zero to express 10, which is a digit in that scale, and the duodecimal scale two additional symbols for 10 and 11. A glance at the above table shows that if the binary scale had been in ordinary use, great facility in the ‘performance’ of arithmetical operations would have been obtained at the cost of largely increasing their ‘extent,’ and that both the advantage and disadvantage diminish as we raise the scale. The selection of ‘ten’ as the ordinary scale is very prevalent, and was evidently suggested by the number of fingers; but the scales of two, three, four, five, six, and twenty have at various times been used by a few nations or tribes. The scale of 12 has long been generally employed in business among northern European nations, as is instanced by such terms as ‘gross,’ signifying 12 times 12, and ‘double gross,’ denoting 12 times 12 times 12; and it has also been largely introduced into the standard measurements of quantity, as inches, pence, ounces troy, etc., causing considerable complexity in calculation, as all abstract numerical calculation follows the decimal system. To remedy this acknowledged evil, it has been proposed to introduce the decimal system *in toto*, as has been done in

## SCALIGER.

France, Italy, Russia, etc., or else to do the same with the duodecimal system. Those who hold to the first proposal have the argument of conformity in their favor; those who support the latter do so on the ground, that 12 has in proportion far more aliquot parts than 10 has, and that on this account the number of fractions, and the size of each numerator and denominator, would be diminished; while both parties can bring overpowering arguments against the continuance of the present method, or rather lack of method. See DECIMAL SYSTEM.

SCALIGER, *skäl'i-jér*, JOSEPH JUSTUS: most eminent scholar of modern times: 1540-1609, Jan. 21; b. Agen, France, tenth son of J. C. Scaliger and Andietta de Roques-Lobejac, and much his father's superior in learning. At the age of 11, he was sent, with two of his brothers, to the college of Bordeaux, where for three years he studied Latin. A pestilence breaking out in the town, he was recalled by his father, who supplemented the scanty knowledge which his son brought home with him by making him write a Latin declamation every day on any subject that he chose. Under this training, he soon attained great proficiency as a Latinist; and in his 19th year, on the death of his father, he went to Paris and studied Greek under the famous Turnebus. He was less indebted, however, to any master than to himself; and finding that his progress was slow under his great preceptor, he closeted himself alone with Homer, and in 21 days read him through, with the aid of a Latin translation, and committed him to memory. In less than four months, he had mastered all the Greek poets. Next, Hebrew, Syriac, Persian, and the most of the modern European languages were mastered in rapid succession by his industry, while he was assiduous in composing verses both in Latin and in Greek. About this time, he declared that he could speak 13 languages, ancient and modern; and such was his ardor in study, that he allowed himself only a few hours' sleep at night, and would frequently pass whole days without rising from his books even for meals. In 1570 on invitation of Cujas he went to Valence, where he studied jurisprudence three years. His proficiency in literature, especially in the history, chronology, and antiquities of Greece and Rome, secured him, 1583, an honorable engagement from Louis de la Roche Pozay, French ambassador at the pontifical court. The year before, however, he had become a Protestant, which rendered it difficult for him to retain an appointment in France. Except that he traveled, at the generous instance of his patron, and visited the chief universities of France and Germany, and found his way to Scotland, little is known of his life 1565-93. In 1593 he complied with an invitation of the Dutch govt., and went to fill the chair of literature, vacated by Lipsius in Leyden Univ., where he spent the residue of his days. His labor now consisted chiefly in interpreting and illustrating the classical authors. From his chair at Leyden he ruled the literary world of Europe as from a throne. Protestantism had the prestige of having on its side the chief of living scholars. But his latest

## SCALIGER.

years were embittered by the tremendous attack of the Jesuits' advocate Scioppius (q.v.) on S.'s family history and pedigree as set forth in a volume by S. himself. Though full of calumnies and lies, the attack yet had on a few important points a crushing force. S. was never married.—He far excelled his father in learning; but like him he was irritable and arrogant; also, he fully shared the paternal pride of pedigree. Though doubtless his belief in the genuineness of his father's claim to be a prince of Verona was sincere, even if his father's had not been. His writings abound with expressions of hatred and contempt toward his opponents, and he has enriched the vocabulary of learned abuse to an extent almost proverbial. He was, however, a man of sincere motive and of honorable sentiment. S. had immense intellectual vigor, and must be credited with having been the first to frame, in his treatise *De Emendatione Temporum* (Paris 1583), a complete system of chronology on fixed principles. It was this most learned achievement, and his invention of the Julian period, that secured for him the title Father of Chronological Science. It was subjected to much emendatory criticism by censors like Petavius, and also by himself, its errors having been partly corrected by him in his later work, *Thesaurus Temporum, complectens Eusebii Pamphili Chronicon cum Isagogicis Chronologie Canonibus* (Amst. 1658, 2 vols. fol.). Among the classical authors whom he criticised and annotated are Theocritus, Seneca (the tragedies), Varro, Ausonius, Catullus, Tibullus. Propertius, Manilius, and Festus. His other works are *De Tribus Sectis Iudeorum*; *Dissertations on Subjects of Antiquity*; *Poemata*; *Epistolae*; a translation into Latin of two centuries of Arabian proverbs, etc. He numbered among his friends the most illustrious scholars of the time, such as Lipsius, Casaubon, Grotius, Heinsius, the Dupuys, Saumaise, Vossius, Velser, P. Pithou; and interesting notices of him are preserved in such works as the *Huetiana*, and above all, in the two posthumous vols. of *Scaligerana*, which embody his conversations. See his Life by Bernays (Berl. 1855).

SCAL'IGER, JULIUS CÆSAR: one of the most famous men of letters that have appeared since the revival of learning: 1484–1558, Oct. 21. In after-life, he created for himself a noble pedigree, and made out that he was descended from the princely family of the Scalas of Verona (see SCALA, DELLA) and that his birthplace was the castle of Riva, on the banks of the Lago di Guarda. According to his own account, he was educated first under the famous Fra Giocondo; was attached as a page to his kinsman, Emperor Maximilian, whom he attended for 17 years in peace and war; was next made a pensioner of the Duke of Ferrara; thereafter studied at Bologna; commanded a troop of cavalry at Turin under the French viceroy; prosecuted his studies there in philology, philosophy, and medicine; and 1525 went to Angen, in France, with the bishop of that diocese, a member of the Rovere family, to whose household he became physician.—Tiraboschi's account, however, which is more probable, represents him as born at

## SCALL—SCALLOP.

Padua; son of Benedict Bordoni, a geographer and illuminator of that city, who, either from the sign of his shop or the name of the street he lived in, assumed the surname of Della Scala. Till his 42d year, young Giulio Bordoni resided chiefly in Venice or Padua, engaged in the study and practice of medicine, and appearing under his true name as an author. In 1525, he withdrew to Agen, either from some advantageous offer, or to promote his fortune, and there fixed his abode. He became physician to the bishop of the diocese; and sought in marriage Andietta de Roques-Lobejac, a young lady only 16 years of age, of noble and rich parentage. An obstacle was thrown in the way of this alliance; and probably with the purpose of lessening the disparity in station between himself and the object of his affections, he procured, 1528, letters of naturalization as a French subject, under the name Jules-César de Lescalle de Bordonis. This was probably the occasion when he added Cæsar to his baptismal name Julius. The marriage took place 1529, and was a happy one. At his death he left a mass of publications on various subjects, and a reputation for extent and depth of learning beyond that of any other man of his day in Europe. He had vigor of understanding, keenness of observation, and extraordinary power of memory. As a thinker, he was more independent than sound; and as a man, was of violently irritable temper and excessive vanity. His best known publications are—*Commentarii in Hippocratis Librum de Insomniis* (Commentaries on the Hippocratic Treatise on Dreams); *De Causis Linguae Latinae Libri XVIII.*, celebrated as the first considerable work in Latin in modern times, and not without value even yet; Latin translation of Aristotle's *History of Animals*; his *Exercitationum Exotericarum liber quintus decimus de Subtilitate ad Hieronym. Cardanum*; his seven books of *Poetics* (also in Latin, and on the whole his best work); his *Commentaries on Aristotle and Theophrastus*; his two orations against Erasmus; his Latin poems, etc.

**SCALL**, n. *skawl* [Dut. *schelle*, bark, membrane: Dan. *skaldet*, bald, bare, callow: Icel. *skalli*, a bare head: comp. Gael. *sgall*, baldness, scab]: scurf in the head; a scurfy head; scabbiness; leprosy. **SCALLED**, a. *skawld*, scabby. **SCALD-** or **SCALLED-HEAD**, a pustular eruption, mostly of the hairy scalp, gradually spreading till the whole hairy crown is covered: see **SCALD-HEAD**: also **RINGWORM**.

**SCALLAWAG**, n. *skäl'a-wäg* [etym. doubtful]: *colloquially*, a scamp; a scapegrace; a good-for-nothing fellow.

**SCALLION**, n. *skü'l'yün* [It. *scalogno*, a shallot—*lit.*, the onion of *Ascalon*—from L. *Ascalōnius*, of or from *Ascalon*, in Palestine]: a plant, a kind of onion; the eschalot; the *Allium Ascalon'icum mājus*, ord. *Liliacēæ*.

**SCALLOP**, n. *skö'l'löp* or *skäl'löp* [OF. *escalope*; O. Dut. *schelpe*, a shell; *schelpvis*, a shell-fish: comp. L. *scalpere*, to scratch, to engrave]: a bivalve mollusk, ribbed and furrowed, found abundantly on the shores of Palestine; pilgrims wore the shell as a token of their visit to the Holy Land; the pecten or clam; a kind of dish for baking oys-

## SCALP.

ters in. SCAL'LOP, n. for ESCALOP (q.v.), in *her.*, a species of shell, the mark of a pilgrim; and symbol of the apostle James the Greater (see PECTEN). SCAL'LOP, v. for ESCAL'LOP, v. to mark or cut the border of a thing into segments of a circle. SCAL'LOPING, imp. SCAL'LOPED, pp. -*lop̄t*: ADJ. having the edge or border marked with segments of circles. SCALLOP-OYSTERS, opened oysters cooked with crumbs of bread.

SCALP, n. *skālp* [O. It. *scalpo*, the skin of the head: Dut. *schelp*, a shell: L. *scalpērē*, to cut, to carve; *scalprum*, a surgeon's knife]: skin of the top of the head from which the hair grows (see SCALP, THE): in N. Amer. *Indian warfare*, the skin and hair of the top of the head torn or cut off: V. to cut or tear the skin and hair from the top of the head. SCALP'ING, imp. and a. depriving of the skin and hair of the top of the head. SCALPED, pp. *skālp̄t*. SCALP'ING-IRON, or SCALPER, in *surg.*, an instrument used in scraping foul and carious bones. SCALPING-KNIFE, a sharp knife used by the N. Amer. Indians in scalping their enemies.

SCALP, n. *skālp*, or SCAUP, n. *skawp* [Dut. *schelp*, or *schulp*, a shell (see SCALLOP)]: in *Scot.*, a bed of oysters or mussels in an estuary or sea.

SCALP, THE: outer covering of the skull or brain-case. Except in the fact, that hair in both sexes grows more luxuriantly on the scalp than elsewhere, the skin of the scalp differs slightly from ordinary skin. But besides the skin, the scalp is composed of the expanded tendon of the occipito-frontal muscle, and of intermediate cellular tissue and blood-vessels. Injuries of the scalp, however slight, must be watched with caution, 'for they may be followed by erysipelas, or by inflammation and suppuration under the occipito-frontal muscle, or within the cranium, or by suppuration of the veins of the cranial bones, and general pyæmia that may easily prove fatal.'—Druitt's *Surgeon's Vade Mecum*, 8th ed. 332. In the treatment of a wound of this region, no part of the scalp, however injured it may be, should be cut or torn away; and, if possible, the use of stitches should be avoided, as plasters and bandages will generally suffice to keep the separated parts in apposition. The chance of suppuration may be prevented by coagulating the blood externally, by dressing the wound with lint, saturated with *Friars' Balsam* (*Tinctura Benzoin*, Comp.), so as to seal up the injured part from the excess of air. The patient should be confined to the house (and in severe cases to bed), should be moderately purged, and fed on non-stimulating, but not too low diet.

Burns of the scalp are liable to be followed by erysipelas and diffuse inflammation, but the brain is not often affected in these cases.

Tumors of the scalp are not rare, the most frequent being the cutaneous cysts popularly known as *Wens* (q.v.), and vascular tumors.

## SCALPEL—SCAMMONY.

**SCALPEL.** n. *skāl'pēl* [F. *scalpel*—from L. *scalpelum*, a scalpel—from *scalpo*, I carve: It. *scalpello*]: a knife used in dissections and surgical operations. **SCALPEL'LIFORM**, a. *-lī-fawrm* [L. *forma*, shape]: shaped like the blade of a scalpel.

**SCALPRIFORM**, a. *skāl'prī-fawrm* [L. *scalprum*, a chisel or knife—from *scalpo*, I carve; *forma*, shape]: knife-shaped; having a cutting edge on one side. **SCALPRUM**, n. *skāl-prūm*, the cutting edge of the incisor teeth.

**SCALY:** see under SCALE 1.

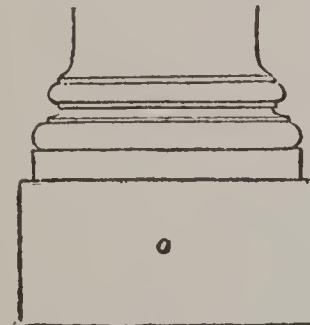
**SCAMANDER**, *ska-mān'dér*: ancient name of a river in the Troad (see TROY), which, according to Homer, was called also Xanthus [Gr. yellow] by the gods, and as a divinity took an important part in the Trojan war, its destructive floods doing serious injury to one party, and thus materially assisting the other. The S. rose in Mount Ida (q.v.), and, flowing w. and n.w., discharged itself into the Hellespont, after being joined by the Simois, about two m. from its mouth; the two rivers, however, since the 1st c. after Christ, have had separate courses. There has been much controversy as to what modern river corresponds to the ancient S.; but recent investigators have settled in favor of the Mendereh. See TROY.

**SCAMBLE**, v. *skām'bl* [Icel. *skammr*, scamped, scanty: a parallel form with *scramble*: comp. also *scumper*]: in OĒ., to scramble; to make shift; to mangle. **SCAMBLING**, imp. scrambling. **SCAMBLED**, pp. *skām'bld*. **SCAMBLER**, n. *skām'bler*, a bold intruder upon one's generosity or table.

**SCAMILLUS**, *skā-mī'lūs*: small plinth below the bases of Ionic, Corinthian, and other columns.

**SCAMMONY**, n. *skām'mō-nī* [F. *scammonée*—from L. *scammōnea*; Gr. *skammōnia*, scammony]: a plant from whose root is obtained a sort of gum-resin (also called S.) of ashy-gray color, rough externally, of acrid taste, and having a resinous splintering fracture.

a, Scamillus.



Few drugs are so uniformly adulterated as S., which, when pure, contains 81 to 83 per cent. of resin (the active purgative ingredient), 6 or 8 of gum, with a little starch, sand, fibre, and water. The ordinary adulterations are chalk, flour, guaiacum, resin, and gum tragacanth. **SCAMMO'NIATE**, a. made with or containing scammony.

S., when pure, is an excellent and trustworthy cathartic of the drastic kind, well adapted for cases of habitual constipation, and as an active purgative for children. The resin of S., extracted from the crude drug by rectified spirit, possesses the advantage of being always of nearly uniform strength, and of being almost tasteless. The *Scammony Mixture*, composed of four grains of resin of S. triturated with two ounces of milk, until a uniform emulsion is obtained, is an admirable purgative for young children in

doses of half an ounce or more. According to Christison, 'between 7 and 14 grains of resin, in the form of this emulsion, constitute a safe and effectual purgative' for adults. Another popular form for administration is the *Compound Powder of Scammony*, composed of S., jalap, and ginger, the dose for a child being 2 to 5 grains, and for an adult 6 to 12 grains. S. is frequently given surreptitiously in the form of biscuit to children troubled with thread-worms.

The plant which produces this valuable drug is *Convolvulus Scammonia* (see CONVOLVULUS), native of the Levant.

It is a perennial; with a thick fleshy tapering root, 3-4 ft. long, 3-4 inches in diameter, which sends up several smooth, slender twining stems, with arrow-head-shaped leaves on long stalks. The root is full of an acrid milky juice, which indeed pervades the whole plant. The S. plant is not cultivated, but the drug is collected

Scammony (*Convolvulus Scammonia*).

from it where it grows wild. The ordinary mode of collecting is by laying bare the upper part of the root, making incisions, and placing shells or small vessels to receive the juice as it flows, which soon dries and hardens in the air.

The name *French* or *Montpellier Scammony* is given to a substance prepared in s. France, chiefly from the juice of *Cynanchum Monseliacum*, plant of nat. order *Asclepiaceæ*. It is a violent purgative.

**SCAMP**, n. *skamp* [Dut. *schampen*, to shave, to slip away; *schampig*, slippery]: a cheat; a rascal; a rake; a worthless fellow. **SCAMPISH**, a. *-pish*, of or like a scamp. **Note**.—‘A workman is said to *scamp* his work when he does it in a superficial dishonest manner.’—Wedgwood. According to Skeat, *scamp* is the original form of *scamper*, the primary meaning of *scamp* being fugitive, hence vagabond.

**SCAMPER**, v. *skamp'pér* [It. *scampare*, to escape—from L. *ex*, out of; *campus*, a plain, a field of battle: comp. Bav. *gampern*, to sport, to spring about: Sw. *skumpa*, to jog]: to run with speed; to hasten in flight: N. a run; a hasty flight. **SCAM'PERING**, imp.: N. act of one who scampers. **SCAM'PERED**, pp. *-pér'd*.

**SCAN**, v. *skán* [L. *scandere*, to climb, to scan: It. *scandere*: F. *scander*]: to examine with critical care; to examine poetry by counting the feet and telling of what kind they are. **SCAN'NING**, imp. **SCANNED**, pp. *skánd*. **SCANSION**, n. *skán'shún*, or **SCANNING**, n. *skán'ing*, the act of critically examining the rhythm of poetry, and ascertaining the number and kind of feet in each verse.

## SCANDAL—SCANDERBEG.

SCANDAL, n. *skän'däl* [F. *scandale*, scandal—from L. *scān'dūlum*—from Gr. *skan'dalon*, a snare, a cause of offense—lit., a pitfall or snare laid for an enemy: It. *scandalō*]: something uttered injurious to the reputation of others, which is either wholly or partially untrue; offense or injury occasioned by a wrong action; detraction; calumny; in *OE.*, a stumbling-block: V. in *OE.*, to charge falsely with faults. SCAN'DALIZE, v. -*iz*, to disgrace; to shock; to offend by some supposed improper action. SCAN'DALIZING, imp. SCAN'DALIZED, pp. -*izd*. SCAN'DALOUS, a. -*üs*, shameful; giving public offense; disgraceful to reputation; openly vile or infamous; defamatory. SCAN'DALOUSLY, ad. -*li*. SCAN'DALOUSNESS, n. -*nës*, the quality of being scandalous or disgraceful.—SYN. of ‘scandal, n.’: detraction; slander; reproach; disgrace; offense; defamation; calumny; opprobrium; shame;—of ‘scandalize’: to shock; defame; traduce; displease; annoy; slander; calumniate; asperse; disgrace; vilify; libel.

SCANDALUM MAGNATUM, *skän'dä-lüm mäg-nü-tüm*: offense of speaking words in derogation of a peer, judge, or great officer of the realm. Formerly in England, a special action was brought for such words, the punishment being damages and imprisonment. This proceeding, though not expressly abolished, is superseded by Criminal Information (q. v.), indictment, or action.

SCANDENT, a. *skän'dënt* [L. *scandens* or *scanden'tem*, climbing—from *scandērē*, to climb]: in bot., climbing: climbing by means of supports, as on a wall or rock; performing the office of a tendril.

SCANDERBEG, *skän'der-bëg* (properly, *Iskander-beg*, ‘the Prince Alexander,’ name given him by the Turks): famous patriot chief of Epirus; about 1404–1467, Jan. 17; b. in Epirus (real name George Castriota); son of John Castriota, one of the great lords of Epirus, his mother, Voisava, being a Servian princess. In 1423, he was given as one of the hostages for the obedience of the Albanian chiefs, and was sent to the Ottoman court, where his physical beauty and intelligence so pleased Amurath II. that he was lodged in the royal palace, and subsequently circumcised and brought up in Islamism, being also put under skilful masters in the Turkish, Arabic, Slav, and Italian languages. In 1433, he greatly distinguished himself in Asia as a Turkish pasha (of one tail); but being offended at the confiscation of his paternal domains, and being solicited by some Epirote friends to return to his native country to aid in the restoration of its independence, he sought to withdraw from the Turkish army. The unsuspecting sultan, who had caused him to be brought up as his son, gave him the command of a large division of the army which was to act against the Hungarian invaders. S., having concerted his plans with 300 of his countrymen in the Turkish army, deserted during the confusion of the first battle (1443), and having previously compelled Amurath’s secretary (whom he afterward killed to avoid detection) to prepare an order investing him with

## SCANDEROON.

the govt. of Croia (now *Ak-hissar*), cap. of Epirus, he and his companions fled thither. The unsuspecting governor resigned the town into his hands, and was massacred with the garrison. At the news of S.'s success, the whole country rose in insurrection, and in 30 days he had driven every Turk, except the garrison of Sfetigrad, out of the country. To strengthen himself in his new position, he invited neighboring princes and Albanian chiefs to a conference, at which it was unanimously agreed to make no terms with the Turks, and to obey S. implicitly as their leader. S. then raised an army of 15,000 men, with which he completely scattered (1444) the 40,000 Turks, whom the indignant sultan had sent against him, killing an immense number of them, and taking a few prisoners. Three other Turkish armies met the same fate, and the 'animus' with which the contest was carried on may be imagined, when we consider that the number of prisoners taken in the last (1448) of these three battles was only 72. Amurath himself 1449 took the field, and stormed many of the principal fortresses, but being then ill of his fatal malady, he retired from before Croia, to die at Adrianople (1450). S.'s splendid successes brought congratulations from the pope and the sovereigns of Italy and Aragon; but many of the Epirote chiefs were becoming wearied of the continual strife, and fell off from him, some even joining the Turks. S.'s career thus became less continuously successful; but in spite of occasional defeats, he stoutly refused the liberal proposals of the sultan, Mohammed II., who had a profound admiration for him, and sheltered by the mountainous nature of his country, carried on unceasing warfare. At last an armed convention was agreed to 1461; and S. profited by this leisure to pay his debt to the pope and the king of Aragon (both of whom had supplied him with material assistance during his greatest need); and crossing to Italy he routed the partisans of Anjou, and restored the kingdom of Naples to the king of Aragon; returning home laden with honors and benedictions. At the instigation of the pope, who had tried in vain to raise the other Christian princes of Europe against the Turks, S. broke the armed truce 1464, and repeatedly defeated the Turks; but Mohammed, becoming furious at these unprovoked aggressions, equipped two mighty armies; the first of which invested Croia, and the second, under his own leadership, advanced more leisurely. The first army was, after a desperate contest, defeated by S. 1466; but the restless and indomitable chief, worn out with the incessant toil of 24 years, died at Alessio the following year. The war continued some time longer, but the great mainstay of the country was now gone; and before the end of 1478, the Turkish standard floated undisturbed over Epirus. Barlesio, a countryman of S., who wrote his biography (*De Vita et Moribus ac rebus gestis Geo. Castrioti*, Rome 1537), remarks his sobriety, the purity of his manners, and the strictness of his religious belief. He had vanquished the Turks in 22 pitched battles.

SCANDEROON': see ISCANDERŪN

## SCANDINAVIA—SCANDINAVIAN LANGUAGE.

SCANDINAVIA, *skūn-dī-nā'vī-a*: large peninsula in n. Europe, bounded n. by the Arctic Ocean; w. by the Atlantic, North Sea, Skager Rack, Cattegat, and Sound, s. and e. by the Baltic Sea, Gulf of Bothnia, and by Finland, with which it is connected on the n.e. by an isthmus 325 m. wide. This peninsula comprises the two kingdoms, Norway (q.v.) and Sweden (q.v.); is 1,240 m. long, 230 to 460 m. broad; 300,000 sq. m. The ridge of mountains which traverses the peninsula in the direction of its length gives character to the whole conformation. The w. division of the Scandinavian peninsula is covered with mountains; the e. half, Sweden, consists principally of low-lying country. The mountains of S. extend from Waranger Fiord, in the extreme n.e. to the promontory of the Naze, in the extreme s.w., with average breadth 180 m. They consist principally of gneiss and micaceous schist, sometimes, but rarely, of porphyry, syenite, granite, and chalk; salt is not found; silver, copper, and iron abound. The Scandinavian Mts., though in reality one great range, are considered as forming four sections—the Lapland Mts. in the n. 1,000 to 2,060 ft. high; the Kjolen Mts. 1,500 to 2,575 ft. high; the Dovre Fjelde, 2,500 to 3,600 ft. high; and the Southern Fjelde, 4,000 to 5,150 ft. high. Though of inconsiderable height, yet the numerous glaciers and snow-fields impart to this range almost an Alpine character. The climate of S. is much milder on the w. than on the e. side, probably from the influence of the Gulf Stream. For the character of the country, its physical features, industries, etc., see NORWAY: SWEDEN.

The ancient *Scandia*, or S., included n. Denmark, as well as the peninsula that still retains the name. It is mentioned first by Pliny, who, unaware that the peninsula was attached to Finland on the n., considered S. as an island.

SCANDINAVIAN LANGUAGE AND LITERATURE: language and literature, during the heathen ages, of the Germanic population in all the northern European or the Scandinavian lands, and which, in traditional belief, had been introduced by Odin and his companions, when the Gothic tribes supplanted the more ancient races of the Finns and Lapps. It is referred to by the oldest authorities always either as the *Dönsk túnga*, 'Danish tongue,' or as the *Norræna*, 'Norse.' We never hear of the 'Swedish' or 'Gothic tongue,' for though different dialects no doubt existed from a very early period among the Scandinavian people, it is certain that substantially the same language was spoken by the Northmen generally till the 11th c. According to recent inquirers, the race of the Northmen, before their settlement in Sweden and Norway, was divided into an e. and w. branch, the former of which is supposed to have used the old language of Norway and Iceland, and the latter the Swedish and Danish dialects. These two divisions of the race had entered Scandinavia by different routes, the eastern having passed along the Gulf of Bothnia through the country of the Finns and Lapps, while the western branch had

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crossed from Russia to the Aland Islands, and spread thence southward and westward; and it seems natural to infer that in their respective lines of migration they may have incorporated into their own speech some of the special characteristics that belonged to the language of the peoples with whom they came in contact. But the differences thus introduced could not have been important, for we find the same language employed in the several most ancient laws of the different people of Scandinavia, while the two Eddas (q.v.)—oldest monuments of Scandinavian speech—which were compiled in Iceland, whither the Northmen had carried their language on their settlement in the island in the 9th c., give evidence of an almost complete identity of local and personal names. This unity of language is further proved by the agreement found to exist in all runic inscriptions, from Slesvig to the n. parts of Sweden, and from Zealand to the w. shores of Iceland. All monuments of this old Northern tongue would, however, have been lost to us, had not the Norræna or Norwegian form of it been carefully preserved and cultivated in Iceland through the short songs (*hljod*, or *quida*) relating to the deeds of the gods and heroes of the north, which had existed as early probably as the 7th c., and had passed with the religion and usages of Norway to the new colony. After the introduction of Christianity into Iceland 1000, schools were founded there, classic literature was cultivated, and Roman characters were adopted for writing the national tongue; but this did not interfere with the zeal with which the national laws and poems were collected and studied by native scholars. This literary activity continued unabated till the 13th c., when the republic of Iceland, after having long been distracted by the dissensions of the rival aristocratic families of the island, was conquered by Hakon VI., King of Norway. Since 1380, Iceland has formed part of the Danish dominions, and though since that period the colonists have partly succumbed to the cramping influences of the subordinate and dependent conditions in which they have been placed; the distance from the mother-country, and the tenacity with which the people cling to all memorials of their former history, have enabled them to preserve their language so unchanged that the Icelander of the present day can read the sagas of a thousand years since, and still writes in the same phraseology that his forefathers used ages ago. But while the old Scandinavian tongue was thus preserved in the distant colony, it had undergone great changes in Norway; and when, by the union of Calmar 1380, the latter country was united to Denmark, the Danish form of speech, that had in the meanwhile been changing under the modifying influences due to introduction of Latin and to contact with other nations, supplanted the Norwegian language, which thenceforth being banished from the pulpit, the law courts, and from literature, split into numerous dialects peculiar to special valleys and fjords, but unknown in the larger towns.

When we come to examine the Icelandic or ancient

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Scandinavian, which is closely allied to its sister Teutonic languages, and like them betrays its eastern origin, we find that it differs from them in several important points. It has this striking peculiarity, that the definite article, instead of coming before the noun, is appended as a termination to the end of the word. The adjective, moreover, which in its indefinite form is subject to inflections, for all genders and cases, undergoes, when in its definite form, fewer and slighter changes. Again, while in the German tongues the verb in the infinitive ends in a consonant, in the old Scandinavian it invariably terminates in a vowel. The old Scandinavian language has a passive form of the verb unknown to its Gothic sister tongues; and while in German the third person of the present tense differs from the second person, it is not so in Old Northern. In the latter, the vowel sounds are greatly modified by a very perfect system of combinations, indicated by dots or accents; and in addition to the consonants of the Gothic languages, it has an aspirated *ð* and *t*. It possesses, moreover, a flexibility and richness of construction which admit of favorable comparison with those of the ancient classical languages; while in number and comprehensiveness of words, and consequent independence of foreign derivates, it presents a regularity and unity lacking in the other Germanic languages. Its mode of construction is simple in prose, and in the earlier forms of poetry, though in the later periods of the Scalds (q.v.) it degenerated into an artificial complexity. The chief feature of the metrical system employed in Old Northern poetry was Alliteration (q.v.). The alliterative method was continued after the introduction of terminal rhyme; but the simplicity of the ancient lay gave way in the 10th c. to the most artificial complexity of versification in the meters invented by the skalds. Besides these scaldic measures, of which 106 are enumerated in the *Hattalykli*, or Key of Meters, drawn up in the 13th c. by the Icelander Snorro Sturluson (q.v.), the scalds were required to know the *Kenningar*, or poetic synonyms, of which there were an enormous number; some words, as Odin, island, etc., having more than 100. The main feature of the system was that nothing must be called by its right name: thus a ship was a beast of the sea, a serpent of the waters, a dragon of the ocean, etc.; a woman was a graceful tree, a fair pearl, etc.; a wife was her husband's *Rune* (q.v.), or his confidential and intimate friend, etc.

The fragments of Old Northern poetry that have come down to us in the *Eddas* belong for the most part to the 8th c., or even perhaps to the 7th c.; and consist of short songs (*hljod* or *quida*), either mystic, didactic, mythic, or mytho-historic: see EDDA. It is supposed that some of these compositions, and several of the poems which celebrate the adventures of the gods, giants, and elves, were composed prior to the immigration into Scandinavia of Odin and his followers; while, on the other hand, the local coloring of others sufficiently prove their northern origin. In addition to the subjects belonging to the Odinic my-

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thology, we have in the mytho-historic lays, known as the songs of the famous Smith Völundr, or the *Völundar-quida*, a cyclus of heroic poems similar to the Old German epic the *Nibelungenlied* (q.v.); but much more ancient in form than that in which the latter has reached us. In the 9th and 10th c. the ancient epic and the simple songs of the older poets gave place, to the artificial poetry of the scalds, which, from its earliest development, manifested a realistic tendency, and made the real adventures of living men the subject of their compositions. Many of these compositions—e.g., the *Eiriksmál*, or the Death and Apotheosis of King Eric Bloodaxe (died 952); the *Hakonar-mal*, or Fall of Hakon the Good; and several poems by the famous Icelandic scald Egill Skalagrimson, while they afford valuable materials for the early history of the North, are among the latest of the skaldic productions that preceded the more degenerate periods of the art. To the 11th and 12th c. belong the poems *Grongaldr* and *Solar-ljod*, composed in imitation of the ancient compositions, and consisting of moral and didactic maxims, the former conceived from an assumed heathen, and the latter from a Christian point of view. In the 13th c. the skaldic art thoroughly declined, and gave place, in Iceland, to a puerile literature, based on biblical stories and saints' legends. In Scandinavia proper, a more modern form of national literature was meanwhile being gradually developed by oral transmission, whence arose the folk-lore and popular songs of Norway and Sweden, and the noble Danish ballads known as the *Kæmpe viser*, whose composition in the Old Northern or Icelandic tongue may probably be referred to the 14th c. The earliest Icelandic prose belongs to the beginning of the 12th c., when Ari 'hinn Frode,' or the Wise, composed a history of his native island and its population in the *Islendinga-bok* and *Landnáma-bok*, the latter continued by others. He was the first northern writer who attempted to assign fixed dates to events by reference to a definite chronology, and his work is remarkable as the earliest historical composition in the old Danish or Norse as it still remains in the living language of Iceland. These works, which have perished, entered largely into the composition of the annals of the early kings of Norway, compiled a century later by Snorro Sturluson under the title *Heimskringla*. Throughout the middle ages the literature of Iceland was enriched with numerous national and other sagas, whose materials were drawn from scaldic songs, folk-lore, local traditions, and family histories; and in its later stages of development included among its subjects the mythic cycle of Arthur and his knights, Merlin, Alexander, Charlemagne, etc. The compilation of the laws of the island attracted the attention of the Icelanders at an early period; and 1118 a complete code, the Gragas, derived from the ancient Norse law, was submitted to the Allthing or popular assembly, and a few years later the canons of the church, or the *Kristinrettr*, were settled and reduced to writing. A collection of those enactments, in the ancient and subsequent

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codes still in force in Iceland, has been made by Stephen-sen and Sigurdsson (Copen. 1853), under the title *Lagasafn handa Islandi*; while the ancient Norse laws, beginning with the *Gulathings-lög* and the *Hirdskra* of Hakon the Good, which date from the 10th c., have been ably and critically edited in Norway under the title *Norges gamle Love* (Christ. 1846-49). The study of the Old Northern language and literature, successfully begun by the native scholars of Iceland in the 17th c., was soon prosecuted with equally happy results in Denmark and Sweden, and within the last 20 years in Norway, where the subject forms a necessary introduction to the investigation of the language and history of the country. Copenhagen has in recent times been the principal seat of these inquiries. Among the Icelandic and Danish scholars who have gained pre-eminent distinction in these researches, are Arne-Magnussen, Torfæus, Olavsen, Finn Magnussen, Worm, Re-senius, Bartholin, Thorlacius, Müller, Rask, Rafn, Keyser, Munch, Unger, Lange, etc. Rask (q.v.) did noble service. Jakob Grimm, Munch, and others, threw much light on the affinities of the Old Northern tongues.—See *History of the Literature of the Scandinavian North*, by F. W. Horn (transl. by Anderson; Chicago 1883). An invaluable work is the *Corpus Poeticum Boreale: the Poetry of the Old Northern Tongue to the Thirteenth Century* (1883), edited, translated, and illustrated with notes and excursuses by Vigfusson and Powell, whose great Icelandic Dictionary is the standard.

SCANDINA'VIAN MYTHOL'OGY: system of legends and beliefs, setting forth the religious ideas of the Germanic peoples of n. Europe or Scandinavia before the introduction of Christianity. According to Vigfusson, the most ancient cult was the homely household worship of the spirits of the dead at the family grave, though the nation may collectively have worshipped the air or sky or thunder. The mythology described below—usually regarded as the S. M.—is, according to this scholar, much later in origin, and, like the northern literature, may have borrowed much from Irish and other Celtic sources, as also from pre-Aryan peoples. Our knowledge of S. M. is derived mainly from the collections of ancient northern sagas known as the Eddas (q.v.), which constitute the Odinic Bible, as it were, of heathen Scandinavia. The value and interest attaching to these records of the ancient faith of the Northmen are enhanced by the fact that there are strong grounds for assuming that the closest affinity, if not identity, of character existed between their religious doctrines and practices and those of the Germanic nations generally. Hence, in the absence of anything beyond the incidental notices of the pagan religion of Germany in the classic writers, the Eddaic exposition of northern mythology is of high importance to the student of the history of every nation of Teutonic origin. The remote situation of the Scandinavian lands, and the hold which the Odin religion had taken of the minds of the Northmen—whose natural

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tendencies inclined more to the pagan merits of valor, courageous endurance of hardships, indomitable resolution, and unflinching fidelity in hate and love, than to the Christian virtues of submission, meekness, and forgiveness of injuries—caused Christianity to take root only slowly and insecurely in those lands, long after a national literature, based on the superstitions and memorials of the ancient faith, had been firmly established among the people. But though there is every reason to believe that all branches of the great Indo-Germanic family of nations had essentially the same system of belief and worship, and venerated the same deities, minor differences were numerous. Thus, e.g., while Danes, Saxons, and Goths worshipped Odin as their chief god, the Swedes generally paid supreme honors to Frey, the god of the year; some tribes of n. Germany regarded Hlodyn, or the Earth, as their principal deity; and the Norwegians directed their worship to Odin's son, Thor; while in parts of Norway even, e.g., in Halgoland, the people worshipped deities not honored elsewhere in Scandinavia. Thus the chief objects of worship in the latter district were Thorgerd, Horgabrud, and Irpa, daughters of Halogi, or High Flame, from whom the name of the country was derived, and who was probably identical with Loki (Fire), who, after having, according to the myth, been beneficent in the beginning of time and united with the All-father, fell from his high estate, and, like some fallen angel, became crafty, evil, and destructive as a desolating flame. Halgoland appears from remains discovered there to have been a special seat of fire or sun worship, which seems to have been nearly universal at one period of the world's history.

Leaving for the present the discussion of the sources whence the northern mythology derived some of the numerous complex elements which entered into its composition, we proceed to give a short summary of its cosmogony.—In the beginning of time, a world existed in the north called Niflheim, in the middle of which was a well, Hvergelmeer, from which sprang 12 rivers. In the south was another world, Muspelheim, a light, warm, radiant world, whose boundary was guarded by Surt with a flaming sword. Cold and heat contended together. From Niflheim flowed venomous, cold streams called Elivaager, which, hardening into ice, formed one icy layer upon the other within the abyss of abysses that faced the north and was known as the Ginnunga-gap. From the south streamed forth the sparkling heat of Muspelheim; and as heat met cold, the melting ice-drops became instinct with life, and produced, through the power of him who had sent forth heat, a human being, Ymir, progenitor of the frost-giants, by whom he was called Oergelmer, or Chaos. He was not a god, but evil, both he and all his race. As yet there was neither heaven nor earth, neither land nor sea, but only the abyss Ginnunga-gap. Ymir drew his nourishment from the four milky streams which flowed from the udders of the cow Aedhumla, a creature formed

## SCANDINAVIAN MYTHOLOGY.

from the melting frost. From Ymir there came forth offspring while he slept—a man and woman growing from under his left arm, and sons from his feet; and thus was generated the race of the frost-giants, or Hrimthursar, among whom the All-father dwelt in the beginning of time, before the heavens and the earth were created.

In the meanwhile, as the cow Aedhunla licked the frost-covered stones, there came forth the first day a man's hair, the second day a head, and the third day an entire man. This man, *Buri*, or the Producing, had a son *Bör* (the Produced), who married Beltsa, one of the giant race, by whom he had three sons, *Odin*, *Vili*, and *Ve*. See GIANTS AND DWARFS (Mythological).

These three brothers, who were gods, slew Ymir, and carrying his body into the middle of Giunnunga-gap, formed from it the earth and the heavens. Of his blood they made all seas and waters, taking the gore that flowed from his body to form the impassable ocean which encircles the earth; of his bones they made the mountains, using the broken splinters and his teeth for the stones and pebbles; of his skull they formed the heavens, at each of the four corners of which stood a dwarf—viz., *Austri* at the e., *Vestri* at the w., *Northri* at the n., and *Suthri* at the s. Of his brains they formed the heavy clouds, of his hair plants and herbs of every kind, and of his eyebrows a wall of defense against the giants round Midgard, the central garden or dwelling-place for the sons of men. Then the three brothers took the glowing sparks that were thrown out of the world Mnspelheim, and, casting them over the face of heaven, raised up the sun, moon, stars, and fiery meteors, and appointed to each its place and allotted course; and thus arose days, months, and years.

Night was of the race of the giants, and in turn married three husbands, by one of whom she had a daughter, Earth, and by another a son, Day, who was bright and beautiful like the gods, or *Œsir*, to whose race his father Delling belonged. To this mother and son, who were akin to the opposite races of the frost-giants and the gods, Allfader committed chariots and horses, and placed them in heaven, where Night rides first through her 24 hours' course round the earth with her horse Hrimfaxi, from whose bit fall the rime-drops that each morning bedew the face of the earth. Close after her comes her fair son Day, with his horse Skinfaxi, from whose shining mane light beams over heaven and earth. All the maidens of giant race were not dark like Night, for to Mundilfori were born a son and daughter of such beauty that their father gave them the names *Mani*, or Moon, and *Sol*, or Sun. The gods, incensed at this presumption, took them up to heaven, and ordained that they should direct the course of the sun and moon, which had been made to give light to the world; and thenceforth Sol drove the chariot of the Sun, which was drawn by two horses, Arvakur (the Watchful) and Alsvith (the Rapid), under whose shoulders the gods in pity placed an ice-cool breeze. A shield named Svalin (the Cooling) was also by their care attached

## SCANDINAVIAN MYTHOLOGY.

to the front of the car, to save sea and land from being set on fire. Mani directs the course of the moon, and he, like his sister, is followed by a wolf that seems about to devour him; and in the end of time this animal, which is of giant race, will with his kindred swallow up the moon, darken the brightness of the sun, let loose the howling winds, and sate himself with the blood of all dying men.

When heaven and earth were thus formed, and all things arranged in their due order, the chief gods or *Œ*sir, of whom there were 12, met in the middle of their city Asgard, which lay on the plain of Ida. These gods were Odin, or All-father, who has 12 names in Asgard, besides many others on earth; Thor, Baldur, Tyr, Bragi, Heimdal, Hod, Vidar and Vali his sons, and Niord, Frey, Ull, and Forsetti. Here they raised for themselves a court with a high seat for Allfader, a lofty hall for the goddesses; and a smithy, in which they worked in metal, stone, and wood, but chiefly in gold, of which precious substance all the implements which they used were made; hence this period of their existence was known as the Golden Age.

This age of peaceful labor lasted till three beautiful but evil maidens made their way from the giants' world, Jotunheim, to Asgard, when confusion and ill-will arose in the world. Then the gods, taking counsel, determined to create new beings to people the universe, and first they gave human bodies and understanding to the dwarfs, who had been generated like maggots within the dead body of Ymir, but who now took up their abodes in the bowels of the earth, in rocks and stones, and in trees and flowers. Then Odin, with two companions, Hœnir and Lodur, went forth on an excursion to the earth, where finding two trees, Ask and Embla, they created a man and a woman of them, Odin giving them spirit or the breath of life, Hœnir sense and motion, and Lodur blood and a fair color, with sight, speech, and hearing; and from this pair, whose dwelling was in Midgard, the human race has sprung. A bridge of three colors, Bifrost, known to men as the rainbow, connects Midgard with Asgard, and over this the gods ride daily on their horses to the sacred fountain of Urd, where they sit in judgment. This fountain lies at one of the three roots of the ash, Yggdrasil, whose branches spread over the whole world and tower above the heavens. Under one of these roots is the abode of Hel (q.v.), goddess of the dead, under another, that of the frost-giants, while under the third is the dwelling of human beings. Below the tree lies the serpent Nidhogg, who is constantly gnawing the roots, and striving with his numerous brood of lesser serpents to undermine Yggdrasil, whose branches are as constantly refreshed by water from the well of Urd, which is poured over them by the Norns. These are three maidens known as Urd, Verdandi, and Skulld (or Past, Present, and Future), who dwell in a fair hall below the ash-tree, where they grave on a shield the destiny which they determine for the children of men.

Besides gods, frost-giants, dwarfs, and men, there were other beings, as the Vanir, who dwelt in the world Vana-

## SCANDINAVIAN MYTHOLOGY.

heim, between the abodes of the gods and of men; and the Light Elves and Dark Elves, the former friendly to mankind, and of great beauty, while the latter were of evil demoniacal natures, and blacker than pitch.

Now, after the three giant maidens came to Asaborg, dissensions soon broke out among these different races, and Odin, by casting a spear among mankind, created war and discord in the world. Then his maidens, the Valkyriur (or choosers of the doomed), surrounded by lightnings, rode forth with bloody corselets and radiant spears, to choose on every battle-field those who should fall, and to lead them into Valhal, where the chosen heroes, known as Einheriar, daily go forth to fight and slay one another, but returning at early morn sound and fresh, recruit themselves for the next night's combats by drinking beer with the gods and eating the flesh of the sacred hog. It is, however, only men of rank, as jarls (or earls), who enter Odin's hall after death, for the base-born, or thralls, belong to Odin's powerful son, Thor (q.v.), who rules over Thrudheim, and drives through the world in a chariot drawn by he goats, bearing with him his magic hammer Miolnir, the iron gloves which he requires to grasp the haft, and his belt of power.

Among the gods there reigned good-will and happiness even after the rest of the world had been disturbed by war, until Loki, or the impersonation of evil, who in infancy had been Odin's foster-brother, was admitted into Asaborg as their equal. By his treachery, Baldur (q.v.), the purest, most beautiful, and best loved of Odin's sons, was slain. The gods, indeed, had power to inflict temporary punishment on Loki, and to chain him under a hot sulphur spring, where he lay for ages; but at length a time will come when Loki's evil progeny will prevail over the gods and the world. This terrible age of destruction, the Ragnarök, or twilight of the gods, will be marked by a three years' winter of bard frost, cutting winds, and sunless air uncheered by summer or spring-tide, when there will be bloodshed throughout the world, brothers will slay one another, parents and children will be at war. The wolf Fenrir will break loose; the sea will burst its bounds as the serpent Jormundgard, encircling Midgard, writhes in fierce rage, and struggles to reach the land. The wolf Sköll will swallow up the sun, and when the world is plunged in almost total darkness, his brother Hati will devour the moon, while the stars will vanish from heaven. As Midgard's serpent and the wolf Fenrir go forth, scattering venom through air and water, the heavens will be rent asunder; the ship Naglfar, which is made of dead men's nails, will be floated on the waters; the Æsir will ride forth across the bridge Bifrost, which will break away behind them; and all the friends of Hel, led on by Loki, will offer battle to the gods on Vigrid's plain. Then Odin, having taken counsel at Mimir's well, will advance armed with his spear Gungnir against the wolf Fenrir, while Thor encounters Midgard's serpent, and is killed by the venom which it exhales from its mouth. Although Fenrir,

## SCANDINAVIAN MYTHOLOGY.

the wolf, will swallow Odin, and thus cause his death, he will himself be slain by the god Vidar, while Loki will fall beneath the hand of Heimdal, the watchman of the gods, and Surt, hurling fire from his hand, will burn up the whole world. After the conflagration of heaven and earth and the whole universe, there will still be dwellings for the evil and the good, the worst of which is Nastrond, a horrible habitation for perjurers and murderers, where serpent-heads pouring forth venom line the walls, while in Gimli, Odin's best heaven, the good and virtuous will find a happy resting-place.

But from the great destruction of the universe another earth, verdant and fresh, will arise, from the deep waters of the ocean; the unsown fields will bear fruits, and all evil will cease; Baldur and other gods will then return to Ida's plain, where Asgard once stood, and taking counsel together, will find the golden tablets which their race had possessed at the beginning of time, and remembering their deeds of old, will await the coming of the mighty All-father, the ruler of all things, who will pronounce judgments, and establish peace that shall endure to the end of time.

The above brief epitome of the Odin cosmogony serves as a framework for the numerous prose and poetic myths which make up the substance of northern mythology; and are contained in a rich mass of sagas, not all complete in themselves, but each throwing some light on the others.

Many theories have been advanced to explain the origin and the fundamental ideas on which the northern myths were based. Some expositors have seen in them a mere reclothing of Bible narratives, and a perversion of Christian truths, by monks in the earlier middle ages; but all that can be safely accepted is, that they are partly historical and partly an impersonation of the active forces of nature. Like the northern languages, their original seat was in the south and east, where kindred mythologies existed among the ancient tribes of India and Persia; and it is probable that the more practical and energetic spirit of the northern myths, and the more warlike character of the gods of the north, compared with the reflective and contemplative nature of their oriental prototypes, may be due to the gradual effect on the minds of a people who had passed from the soft enervating influences of a southern clime to the stern rigors of the north, where man lived in constant warfare with the elements and with his fellow-men. According to Snorro Sturluson (q.v.), whose opinion seems to a certain extent an echo of the traditional belief of his forefathers, Odin and his sons and companions were earthly kings of a sacerdotal caste, who had migrated from Asia — perhaps from Troy—and who conquered and ruled various parts of Scandinavia and n. Germany, where after their death they were regarded by the people as deities. In conjunction with this mode of representation, the mythic tales of the warfare of the gods with giants, their intercourse with dwarfs, and spirits of the air and water, and their wanderings on earth, are interpreted as memori-

## SCANDINAVIAN MYTHOLOGY.

als of real war with pre-existing races, and of the spread of Odin's religion from its chief seat in Sweden over the neighboring countries. This theory explains only a few of the myths; while some, as above observed, may be referred to traces of an older faith, which lingered among the Finns and Lapps after the advance of the more civilized conquering races had driven those tribes from the southern districts of Scandinavia, which they originally occupied, to the barren recesses of the north.

The worship of the gods was celebrated either in spacious temples, of which there were many in different parts of Scandinavia or on stone heaps or altars, known as *horg*. These altars were always near some well, and close to a sacred grove, or a solitary tree, on which the votive offerings were suspended, after they had been washed at the neighboring spring by the attendant priestesses, known as *horgabrudar*. Human sacrifices, though never resorted to on ordinary occasions, were not rare in times of public calamity, e.g., war, failure of crops, disease, etc., and the horse, whose flesh was highly esteemed, was a frequent victim; but the fruits of the earth and spoils of war were the usual offerings. Three great festivals were held every year, the first at the new year in the Yule month, when Thorablot, or the sacrifice of Thorri, an ancient god of the Finns and Lapps, was offered. On these occasions, offerings were made to Odin for success in war, and to Frey for a fruitful year—the chief victim being a hog, which was sacred to Frey, on the assumption that swine first taught mankind to plow the earth. Feastings and Yule games occupied the whole month, whence it was called the Merry Month. The second festival was in mid-winter, and the third in spring, when Odin was chiefly invoked for prosperity and victory on the Vikings, or sea-roving expeditions then entered upon. On the introduction of Christianity, the people were the more ready to conform to the great church festivals of Christmas and Easter, from the fact of their corresponding with the ancient national sacrificial feasts; and so deep-rooted was the adhesion to the faith of Odin in the north, that the early Christian teachers, unable to eradicate the old ideas, were driven to the expedient of trying to give them a coloring of Christianity. Thus the black elves, giants, evil subterranean sprites, and dwarfs, with which the Northmen peopled earth, air, and water, were declared by them to be fallen angels or devils, and under the latter character suffered to retain their old denominations. Belief in these imaginary beings survived the spread of the Reformation, and can scarcely be said even yet to have died out in Scandinavian lands among the superstitious and ignorant; while among the more enlightened the myths connected with them are still related, and serve to give a poetic interest to special localities.—Our own association with the Scandinavian mythology is perpetuated in the names of the days of the week: see WEEK.

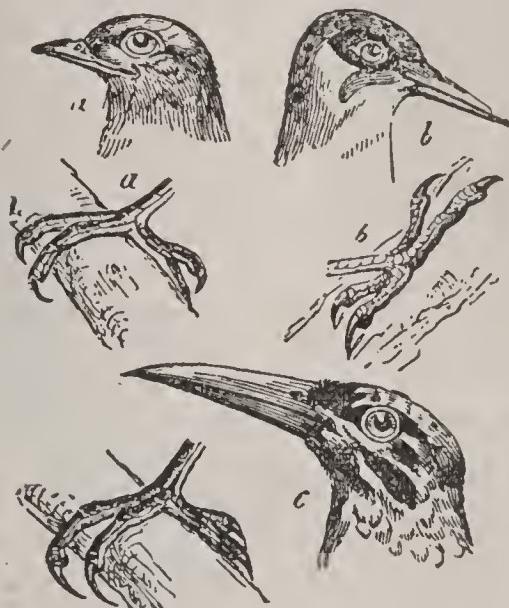
The best northern authorities on Scandinavian mythology are N. M. Petersen, *Nordisk Mythologi* (2d ed 1865);

## SCANSION—SCANTLE.

the Norwegian works of Munch and Keyser; Jakob Grimm, *Deutsche Mythologie*; Simroek's *Handbuch* (4th ed., 1874); Maunhardt, *Die Götterwelt*; Thorpe, *Northern Mythology*.

**SCANSION, SCANNING:** see under SCAN.

**SCANSORIAL**, a. *skān-sō'rī-äl* [L. *scansōrius*, belonging to climbing—from *scandērē*, to climb]: climbing, or formed for climbing; an epithet applied to the order of climbing birds, including the parrots and woodpeckers, called the **SCANSORES**, n. pl. *-rēz*. See CLIMBERS (under CLIMB).



Scansores:

a, Head and foot of Cuckoo; b, Of Green Woodpecker;  
c, Of Great Jacamar.

**SCANT**, a. *skānt* [Icel. *skammr*, short; *skamtr*, a measured portion: Norw. *skant*, a measured portion; *skanta*, to measure off]: scarcely sufficient; neither large nor plentiful; not liberal; parsimonious; barely fair; light as the wind: V. to limit; to straiten; to become less. **SCANT'ING**, imp. **SCANT'ED**, pp. **SCANT'Y**, a. *-i*, not copious or full; hardly sufficient; sparing. **SCANT'ILY**, ad. *-i-lī*, not fully; not plentifully; niggardly. **SCANT'NESS**, n. *-nēs*, or **SCANT'INESS**, n. *-i-nēs*, the condition or quality of being scant or scanty; narrowness.—**SYN.** of 'scanty': meagre; scarce; poor; deficient; narrow; small; short; sparing; parsimonious; niggardly; penurious; scant.

**SCANTLE**, v. *skānt'l* [OF. *eschanteler*, to cut off the corners or edges of—from *chancier*, a corner-piece—from mid. L. *cantellus*, a little corner: Ger. *kante*; It. *canto*, corner]: to divide into little pieces. **SCANTLING**, imp. *skānt'ling*: N. a small quantity; certain proportion; a sample; the size to which a piece of timber is to be cut; the sectional breadth and thickness of timbers for roofs, floors, etc.; also general name for quarterings or pieces of timber about 5 inches or less in thickness; in *masonry*, the size of the stones in length, breadth, and thickness; a rough sketch. **SCANTLED**, pp. *skānt'ld*. **SCANT'LET**, n. in *OE.*, a small quantity; a small pattern; a little piece.

## SCAPE—SCAPPLE.

**SCAPE**, n. *skāp* [L. *scāpus*; Gr. *skapos*, *skēptron*, a stem, a staff—from *skēptō*, I support; It. *scapo*]: in bot., a naked flower-stalk bearing one or more flowers, arising from a short axis, and usually with radical leaves at the base, as in the cowslip or hyacinth; in an insect, the shorter part of each of the antennae which is undivided; in arch., part of the shaft of a column, where it leaves the base. **SCAPELESS**, a. *-lēs*, destitute of a scape. **SCAPIFORM**, a. *skāp'-fōrm* [L. *forma*, shape]: resembling a scape.



Scape.

1, Wild Hyacinth (*Scilla nutans*).  
2, Cowslip (*Primula veris*).

s s, Scapes.

the day of Atonement, solemnly laid the sins of the people, and which was afterward driven into the wilderness; any person on whom the faults of another may be fixed.

**SCAPE-GRACE**, n. *skāp'grās* [*escape*, and *grace*]: a graceless, worthless, hare-brained creature.

**SCAPE**, and **SCAPEMENT** [for *escape* and *escapement*]: see **ESCAPE**. **SCAPE**, n. *skāp*, flight from hurt or danger; means of escape; in *OE.*, deviation from regularity; negligent freak; loose act of vice or lewdness.

**SCAPHA**, n. *skāf'a* [L.—from Gr. *skaphē*, anything hollow]: in *anat.*, the cavity of the external ear, between the helix and the antihelix.

**SCAPHITE**, n. *skāf'it* [L. *scapha*; Gr. *skaphē*, a light boat, a skiff]: in *geol.*, a genus of the ammonite family, peculiar to the Chalk formation, and so named from the boat-like contour of its shell.

**SCAPHOGNATHITE**, n. *skāf-ōg'nā-thīt* [Gr. *skaphē*, a boat; *gnathos*, a jaw]: the boat-shaped appendage of the second maxilla in the lobster, the function of which is to spoon out the water from the branchial chamber.

**SCAPHOID**, a. *skāf'oyd* [Gr. *skaphē*, a skiff; *eidos*, resemblance]: resembling a boat; applied to two somewhat boat-like bones—one in the carpus or wrist (see **HAND**), the other in the tarsus of the Foot (q.v.).

**SCAPOLITE**, n. *skāp'ō-līt* [L. *scāpus*; Gr. *skapos*, a rod, a stem; *lithos*, a stone (see **SCAPE** 1)]: a mineral consisting of alumina and lime, occurring in long prismatic or rod-like crystals of various colors.

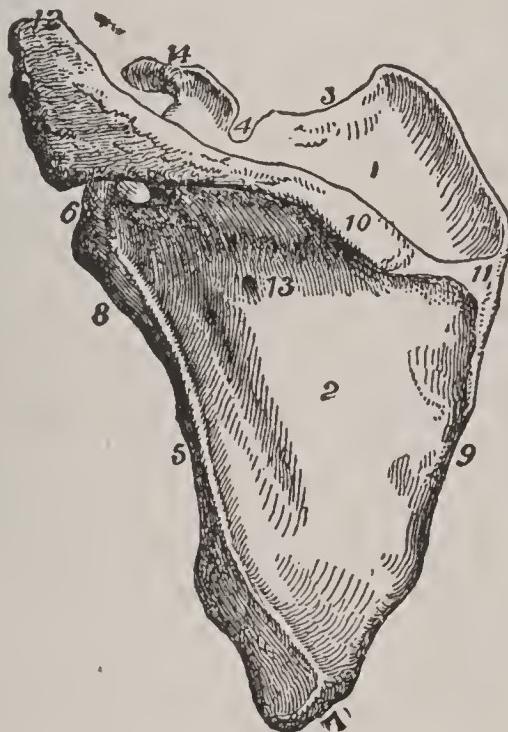
**SCAPPLE**, v. *skāp'pl* [comp. mid. L. *scapellārē*, to cut]: in *OE.*, to rough-dress a stone (making it even but not smooth) preparatory to hewing. **SCAPPING**, imp. **SCAPPED**, pp. *-pld.*

## SCAPULA.

SCAPULA, n. *skăp'ū-lă* [L. *scap'ūlæ*, the shoulder-blades]: the blade-bone of the shoulder; plu. SCAP'ULÆ, -lē (see below). SCAP'ULAR, a. -lér, or SCAP'ULARY, a. -lér-ī [mid. L. *scapulāris*]: of or pertaining to the shoulder, or to the scapula: N. [F. *scapulaire*, a scapulary—from mid. L. *scapulārium*]: in Rom. Cath. Chh., a portion of the monastic habit, worn on the shoulders (see below). SCAP'ULARS, n. pl. -lérz, the arteries near the shoulder-blade: the feathers which spring from the shoulders of wings.

SCAP'ULA, THE, or SHOUL'DER BLADE: flat triangular bone, which, when the arm hangs loosely down, extends posteriorly and laterally from the first to about the seventh rib. It presents for examination an outer convex and an inner, smooth, and concave surface, three borders (a superior, an inferior or axillary, and a posterior), three angles, and certain outstanding processes.

The figure represents an outer or posterior view of the S. It is divided into two unequal parts, the supra-spinous



A Posterior View of the Left Scapula:

The parts designated by the figures 1, 2, 4, 6, 8, 10, 11, 12, are sufficiently described in the text; 3 is the superior border; 5, the anterior or axillary border; 7, the inferior angle; 9, the posterior border or base; 13, one of the nutritive foramina; 14, the coracoid process. (From Wilson's *Anatomist's Vade Mecum*.)

Fossa (1), and the infra-spinous fossa (2), by the spine (10), a crest of bone beginning at a smooth triangular surface (11) on the posterior border, and running across toward the upper part of the neck of the S. (8), after which it alters its direction and projects forward, forming a lofty arch, known as the acromion process (12), which overhangs the glenoid cavity (6), or receptacle for the head of the humerus or main bone of the arm. This acromion [from Gr. *acros* ὄμος, summit of the shoulder] obviously serves to protect the shoulder joint, as well as to give great leverage to the del-

## SCAPULAR—SCAR.

toid muscle which raises the arm. It is this process which gives to the shoulder its natural roundness. From the upper part of the neck (8) proceeds a remarkable curved projection termed the coracoid process, from its supposed resemblance to the beak of a raven [Gr. *kōrax*]. It is about two inches long, and gives attachments to several muscles. The upper border of the S. presents a very remarkable notch (4), which in the recent state is bridged over with a ligament, and gives passage to the supra-scapular nerve. This bone articulates with the clavicle and humerus, and gives attachment to no less than 16 muscles, many of which, e.g., the biceps, triceps, deltoid, serratus magnus, are very powerful and important.—The uses of this bone are as follows : 1. It connects the upper extremity to the trunk, and participates in and is subservient to many of the movements of the arm; 2. By its extended flat surface it furnishes a lateral protection to the chest; 3. It affords attachments to various muscles which modify the size of the thoracic cavity, and is thus concerned in respiration.

**SCAP'ULAR, or SCAP'ULARY:** portion of the monastic habit, so called from its being worn upon the shoulders. It consists of a long strip of serge or stuff, the centre of which passes over the head, one flap hanging down in front, the other on the back. The S. of the professed monks in most orders reaches to the feet, that of the lay brothers only to the knees. The color differs for different religious orders or congregations. Besides the S. worn by the members of religious orders strictly so-called, there is also in the Rom. Cath. Church a religious assoc. or confraternity, whose members while living in the world and mixing in ordinary life, wear, though not conspicuously, a small religious emblem called a S. The chief duties of this confraternity consists in recitation of certain prayers, or observance of certain religious or ascetical exercises through devotion to the Blessed Virgin. The members may or may not bind themselves by a vow of chastity. This assoc. was founded in the middle of the 13th c. by an English Carmelite friar, Simon Stock, and is said to have originated in a vision, which has been the subject of much controversy, as well with Protestants as among Rom. Catholics themselves.

**SCAPUS, n. *skā'pūs* [L. *scāpus*, a stalk (see also SCAPE 1)]:** the stem or trunk of a feather; the shaft of a column; a scape.

**SCAR, n. *skār* [Bret. *skarr*, a crack, a chap; *skarra*, to crack; Dan. *skaar*, a notch; OF. *escare*; Sp. *escara*, a scar—from L. *eschara*, a scar caused by burning: Gr. *esk̄ara*, a fireplace, a scab made by cauterizing]:** a mark left by a wound which has healed; any mark or blemish; in bot., a mark upon a stem or branch seen after the fall of a leaf, or upon a seed after the separation of its stem. V. to mark as with a scar; to form a scar. **SCAR'RING, *imp.*** **SCARRED.** pp. *skārd*.

**SCAR, n. *skār* [L. *scarus*; Gr. *skaros*, the scarus]:** a fish of the genus *Scarus*—usually called parrot-fish.

## SCAR—SCARABÆIDÆ.

SCAR, n. *skár*, or SCAUR, n. *skaur* [Icel. *sker*, a rock in the sea: Sw. *skär*]: in *Scot.*, a bare and broken place on the side of a hill or mountain; a naked detached rock. SCAR LIMESTONE, in *geol.*, a name applied to the lower group of the carboniferous limestone, as developed in bluff precipices or lofty scars.

SCARAB, n. *skár'āb*, or SCARABEE, n. *skár'ā-bē*, or SCARABÆUS, n. *skár'ā-bē'ūs* [L. *scarabæus*; Gr. *skarabos*, a beetle: F. *scarabée*]: a beetle; applied to such insects as the elephant and the Hercules beetles (see SCARABÆIDÆ). The figure of a beetle, plain or inscribed with characters, habitually worn by the anc. Egyptians and Etrurians as an amulet (see below).

SCARABÆIDÆ, *skár-a-bé'ī-dē*: very numerous tribe of lamellicorn coleopterous insects (see LAMELLICORNES), of which more than 3,000 species are known, the greater number inhabitants of tropical countries, though species are found in almost all parts of the world. Some tropical species are among the largest of beetles; those in colder regions are comparatively small. The tribe is divided into six sections: *Coprophagi* (dung-eaters), *Arenicoli* (dwellers in sand), *Xylophili* (delighting in wood), *Phyllophagi* (leaf-eaters) *Anthobii* (living on flowers), and *Melitophili* (delighting in honey), named according to prevalent and characteristic habits of the species belonging to them; though the names do not accurately denote the habits of all the species of each section. The sections are distinguished by differences in the organs of the mouth and the antennæ. To the section *Coprophagi* belong the greater number of the Dung Beetles (q. v.), or Scavenger Beetles, so useful in warm countries in removing offensive matter; among which is the Sacred *Scarabæus* of the anc. Egyptians (*Scarabæus* or *Ateuchus sacer*). Some of the *Xylophili*, as the great Hercules Beetle (q. v.), have remarkable projections from the head of the thorax of the males. The Cockchafer (q. v.) is an example of the *Phyllophagi*; the Goliath Beetle (q. v.) is one of the *Melitophili*, to which section the Rose Beetle also belongs.

## SCARABÆUS—SCARBOROUGH.

**SCARABÆUS**, *skär-a-bé'üs*: beetle held sacred by the Egyptians, commonly known in entomology as the *Scarabæus* or *Ateuchus sacer*; called *Heliocantharus* or *Canthus*, by the Greeks, and S. by the Latins. Scarabæi were employed for rings, necklaces, and other purposes by the Egyptians, Phœnicians, and Etruscans (see GEM). These are distinguished by the absence or presence of striated elytra and other marks. Entomologists have recognized four distinct species of the *Ateuchus* on Egyptian monuments; viz., *A. semipunctatus*, *A. laticollis*, *A. morbillosus*, *A. puncticollis*. Several mystical ideas were attributed to the S.: the number of its toes, 30, symbolized the days of



Scarabæus.

the month; the time it deposited its ball in which its eggs were deposited was supposed to refer to the lunar month; the movement of the clay-ball referred to the action of the sun on the earth, and personified that luminary. The S. was supposed to be only of the male sex; hence it signified the self-existent, self-begotten, generation or metamorphosis, and the male or paternal principle of nature. In this sense it appears on

the head of the pygmean deity, Ptah-Socharis Osiris, the demiurgos, and in astronomical scenes and sepulchral formulas. In the hieroglyphs it is used for the syllable *khepru*, and expresses the verb ‘to be, exist.’ In connection with Egyptian notions, the Gnostics and some of the Fathers called Christ the Scarabæus. The insect, during its life, was worshiped, and after death, embalmed.—*Horapollo*, i.c. 10; Ælian *De Nat. Anim.* x. 15; Pettigrew, *History of Mummies*, 221; Wilkinson, *Man. and Cust.* v. 255.

**SCARAMOUCHE**, n. *skär'ä-mowch* [F. *scaramouche*: It. *scaramuccia*, a skirmish—from a famous Italian buffoon, who d. Paris 1694]; a character in the old Italian comedy, originally derived from Spain, representing a military poltroon and braggadocio. He was dressed in a sort of Hispano-Neapolitan costume, including a black *toque* and

mantle, and a mask open on the forehead, cheeks, and chin; and always received an inglorious drubbing at the hands of harlequin.



Scaramouch.

**SCARBOROUGH**, *skär'brük* or *skär'bür-üh* (i.e., fortified rock); English seaport and municipal and parliamentary borough on the e. coast of Yorkshire, in the N. Riding; 42 m. n.e. of York, about 20 m. n.w. of Flamborough Head. It is built around a charming bay open

to the s. and s.w. and protected on the n.e. by a promontory ending in a castle-crowned height which looks out on the North Sea. From the sands the town has gradually climbed the rising ground behind in successive terraces and crescents. The chief buildings are churches, chapels, and

## SCARCE—SCARE.

benevolent and other institutions, with which the town is well furnished. A fine cast-iron bridge, 75 ft. high, over a chasm 400 ft. wide, connects the old and new towns, and leads to the spa; and a bridge was erected 1865 over a picturesqu<sup>e</sup> ravine to connect the w. part of the town with its large and fashionable s. suburb. The springs, saline aperient, and chalybeate, are on the margin of the sea, and are surrounded by walks and ornamental grounds. S. however is now resorted to not so much for the springs as for sea bathing. In winter it is only 0·6° cooler than Brighton; in summer it is 3·6° cooler. The harbor, composed of three piers, and furnished with a light-house, is the most important in this part of the e. coast. Every accommodation is offered to visitors for sea-bathing; S. is reputed a most fashionable watering-place, and during the season, May—Oct., its pop. is increased about 20,000. Including all who come for a short stay, excursionists, etc., the place is said to have about 200,000 visitors in the year. The Grand Hotel on St. Nicholas Cliff fronting the South Bay, is one of the largest hotels in England. The south side is deemed the most attractive; but the north side also has a fine beach, and a promenade pier. In 1880 there entered the port 382 vessels of 25,711 tons; cleared 351 of 23,302 tons. The castle was erected about 1136. It was held against the barons by Piers Galveston, who, however, surrendered, and it was twice besieged by the parliamentary forces. At present it is a barrack, fortified by batteries.—Pop. (1881) 30,504; (1891) 33,776.

SCARCE, a. *skärs* [OF. *escars* or *eschars*, sparing, niggardly; *escharcer*, to diminish: It. *scarso*, scarce, scant; Bret. *skarz*, slender, little; *skarza*, to spare, to diminish]: in small quantity compared to the demand; not common; few in number, and scattered; not often found or met with; in *O.E.*, not liberal; stingy; parsimonious. SCARCE'LY, ad. -*lī*, hardly; with difficulty. SCARCE'NESS, n. -*nēs*, or SCARCITY, n. *skärs'i-tī* [OF. *escarseté*]: the condition of being scarce; deficiency.—SYN. of ‘scarce’: infrequent; rare; deficient; uncommon;—of ‘scarcity’: want; lack; dearth; penury; rarity; infrequency.

SCARCEMENT, *skärs'mēnt*: plain set-off or projection in a wall: foundations have generally one or more scarcements.

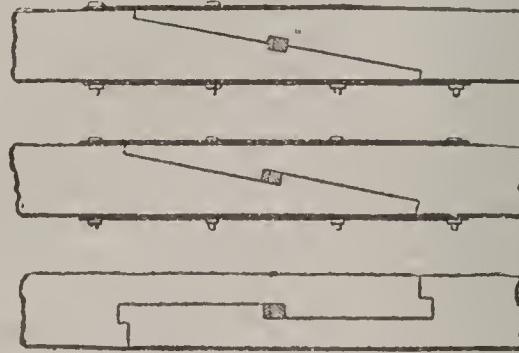
SCARD, n. *skärd* [see SHARD]: a shard; a fragment.

SCARE, v. *skär* [Scot. *skair*, to take fright: Icel. *skiarr*, timid, shy: Norw. *skjerra*, to frighten, to scare]: to terrify suddenly; to frighten. SCAR'ING, imp. SCARED, pp. *skärd*. SCARECROW, anything set up in a field or garden to frighten away birds; any vain terror.

## SCARF—SCARIOUS.

**SCARF**, n. *skárf* [AS. *scearfe*, a fragment: Dut. *schurf*, a shred: OF. *escharpe*, a beggar's scrip or bag, a scarf; Ger. *scherbe*, a scarf, a fragment]: sort of oblong shawl thrown loosely over the neck and shoulders; a kind of necktie or sash; in *her.*, small ecclesiastical banner suspended from the top of a crosier: plu. SCARFS, *skárf*s, or SCARVES, *skárvz*. SCARF, v. in *OE.*, to throw on as a scarf; to bandage. SCARF'ING, imp. SCARFED, or SCARFT, pp. *skárft*.

SCARF, v. *skárf* [Sw. *skarfwa*, to piece out: Dan. *skarre*; Norw. *skara*, to scarf timber: Icel. *skera*, to shape: Sp. *escarpas*, to rasp, to slope down a bank, to scarf timber]: to unite two pieces of timber at the ends by a sort of dove-



Various Forms of Scarfs.

tailing; to join or piece. SCARF'ING, imp.: N. the process of joining two pieces of timber by notching their ends into each other. SCARFED, pp. *skárft*.

**SCARFSKIN**, n. *skárf'skín* [Bav. *schurff'en*, to scratch or peck off the outside of a thing, and Eng. *skin* (see SCURF)]: the outer thin integument of the skin; the cuticle or epidermis.

**SCARIDÆ**, *skär'i-dē*: family of teleost fishes, erected out of genus *Scarus*: see LABRIDÆ: PARROT-FISH.

**SCARIFY**, v. *skär'i-fí* [F. *scarifier*—from L. *scarificáre*, to scratch open: Gr. *skariphaomai*, I make a scratch with a sharp-pointed instrument—from *skariphos*, a pointed instrument: It. *scarificare*]: to scratch or cut slightly the skin of an animal by means of a lancet so as to draw blood from the minuter vessels only. SCAR'IFYING, imp. SCAR'IFIED, pp. *-fid*. SCAR'IFIER, n. *-fí-ér*, one who scarifies; an instrument used for scarifying; in *agri.*, an implement with prongs used for stirring the soil. SCAR'IFICA'TION, n. *-fí-ká'shún* [F.—L.]: incisions in the skin with a lancet or like instrument. SCAR'IFICA'TOR, n. *-ká'tér*, an agricultural instr. for stirring and loosening the soil without turning it over; an instr. containing lancets for cupping.

**SCARIOUS**, a. *ská'rí-ñs*, or **SCA'RIOSE**, a. *-ōs*: in *bot.*, having the consistence of a dry scale; membranous, dry, and shrivelled.

## SCARLATINA.

SCARLATINA, n. *skár'lät-é'nă* [It. *scarlattina*, scarlet fever—from *scarlatto*, scarlet (see SCARLET): F. *scarlatine*, scarlet fever], or SCARLET FEVER: one of the group of diseases called Exanthemata (q.v.). SCARLATINOUS, a. *skár'lät-é'nüs*, of scarlet color; of or pert. to scarlet fever.—In addition to the characters common to the group, S. is almost always attended by sore throat; and the rash or eruption, of bright scarlet color, commonly appears as early as the second day after the manifestation of the febrile symptoms, and ends in desquamation of the cuticle on the sixth or seventh day.. Most writers on medicine make three varieties of this disease—viz., *S. simplex*, in which there are the fever and the rash, but scarcely any throat-affection; *S. anginosa*, in which, in addition to the fever and the rash, the throat-affection is the most prominent symptom; and *S. maligna*, denoting certain cases of extreme violence, in which the system is at once overwhelmed by the force of the disease, or in which the symptoms evince in the patient an extraordinary weakness and lack of vital power.

The disease begins with shivering, lassitude, headache, frequent pulse, hot dry skin, flushed face, thirst, loss of appetite, and furred tongue. Shortly after the appearance of the febrile symptoms, the throat begins to feel irritable, and, on examination, is found to be red, and often more or less swollen. This redness becomes diffused over the interior of the mouth, and the tongue. The rash begins in the form of minute red points, which soon become so numerous that the surface appears of almost uniform red. It appears first on the neck, face, and breast, whence it gradually spreads over the trunk and extremities. The reddened surface is smooth to the touch, and the color temporarily disappears on pressure of the finger. With the true rash, minute vesicles, known as *Sudamina* (q.v.), sometimes occur. The eruption, in ordinary cases, is persistent for three or four days, after which it gradually disappears, and is usually gone by the end of the seventh day. The cuticle then begins to scale off in small bran-like scurf, or in flakes of various sizes. Specimens of almost entire epidermic covering of the hand or foot, forming a natural glove or slipper, are numerous in pathological museums; but such perfect moulting is comparatively rare. The desquamative process is usually completed in a fort night or a little more, from the beginning of the disease. The fever does not abate on the appearance of the rash, but continues more or less decided through the progress of the case; it often presents exacerbations toward evening, and is occasionally attended with delirium, or even with comatose symptoms. If the urine be examined, both chemically and microscopically, a few days after desquamation has set in, it will be found to contain albumen, and to exhibit a large amount of epithelium from the uriniferous ducts of the Kidneys (q.v.).

*Malignant Scarlatina* is a terrible form of this disease. The rash comes out late and imperfectly, and sometimes is hardly perceptible; or, having appeared, it may suddenly

## SCARLATINA.

recede; and sometimes it is intermixed with livid spots. The pulse is feeble, the skin is cold, and there is extreme prostration of strength. In such a case as this, death may occur (apparently from blood-poisoning) in a few hours. Other cases rapidly assume a typhus-like character. 'The pulse (says Dr. Watson) becomes frequent and feeble; the tongue dry, brown, and tremulous; the debility extreme; the breath offensive; the throat is livid, swollen, ulcerated, and gangrenous; and the respiration is impeded by viscid mucus, which collects about the fauces. Over this variety of the disease, medicine has comparatively little control.'

Even in *S. anginosa*, there is considerable danger. The disease may prove fatal (1) from inflammation or effusion within the head, or (2) from the throat-affection, which often proceeds to disorganization and sloughing of the adjacent parts. Moreover, in parturient women, even the mildest form of *S.* is fraught with great peril. Further, when the disease is apparently cured, the patient is exposed to great hazard from its consequences or *sequelæ*. Children who have suffered a severe attack of *S.* are liable (in the words of the physician above quoted) 'to fall into a state of permanent bad health, and to become a prey to some of the many chronic forms of scrofula—boils, strumous ulcers, diseases of the scalp, sores behind the ear, scrofulous swellings of the cervical glands and of the upper lip, chronic inflammation of the eyes and eyelids. The above-named sequels frequently follow small-pox and measles; but *S.* is often followed also by the form of dropsy known as *anasarca*, or serous infiltration of the subcutaneous cellular tissue, frequently accompanied with dropsy of the larger serous cavities. Strange as it may appear, this dropsy is much more common after a mild than after a severe form of *S.*; but this apparent anomaly is due probably to the fact that less caution is observed in the mild than in the severe cases during the dangerous period of desquamation. If the patient (e.g.) is allowed to go out while new cuticle is still forming, the perspiratory power of the skin is checked by the cold, and the escape of the fever poison through the great cutaneous outlet is thus prevented. An excess of the poison is therefore driven to the kidneys, where it gives rise to the form of renal disease known as 'acute desquamative nephritis.'

*S.*—like all the *exanthemata*—occurs in the epidemic form; and each epidemic presents its peculiar type, the disease being sometimes uniformly mild, and at other times almost as uniformly severe. The treatment varies according to the preponderating symptoms. In *S. simplex*, nothing is required except confinement to the house, a non-stimulating diet, and due regulation of the bowels, which are apt to be costive. In *S. anginosa*, cold or tepid sponging gives much relief if the skin is hot. If no bad head-symptoms are present, all that is necessary is to prescribe saline draughts, of which citrate of ammonia, with a slight excess of carbonate of ammonia, forms the best ingredient, and to keep the bowels open once or twice a day by gentle laxatives. In *S. maligna*, there are two main

## SCARLATINA.

ources of danger, recognized as distinct first by Dr. Watson: ‘The one arises from the primary impression of the contagious poison upon the body, and particularly upon the nervous system, which is overwhelmed by its influence. The patients sink often at a very early period, with but little affection either of the throat or skin. If we can save such patients at all, it must be by the liberal administration of wine and bark, to sustain the flagging powers until the deadly agency of the poison has in some measure passed away. But another source of danger arises from the gangrenous ulceration which is apt to ensue in the fauces, when the patient is not killed by the first violence of the contagion. The system is *re-inoculated*, I believe, with the poisonous matter from the throat. Now, under these circumstances also, quinia, or wine, and, upon the whole, I should give the preference to wine, is to be diligently though watchfully given.’ In addition to these remedies, a weak solution of chloride of soda, of nitrate of silver, or of Condyl’s disinfectant fluid, should be used as a gargle; or if, as is often the case, the patient is incapable of gargling, the solution may be injected into the nostrils and against the fauces by means of a syringe or elastic bottle.

Three medicines have been so highly commended in scarlet fever generally, by trustworthy observers, that it is expedient to notice them. The first is chlorate of potash ( $KClO_3$ ) dissolved in water in the proportion of a drachm to a pint: a pint, or a pint and a half, may be taken daily. It was originally prescribed under the idea that it gave off its oxygen to the blood, and was eliminated from the system as chloride of potassium (KCl). Although this view is now known to be incorrect, there is no doubt that the salt is often of great benefit in this and some other diseases, e.g., diphtheria and typhus fever. The second medicine is a very weak, watery solution of chlorine, of which a pint may be taken in the day. The third is carbonate of ammonia in five-grain doses three times a day, in beef-tea, wine, etc.

In the early stage before the appearance of the rash, S. may be readily mistaken for several other febrile diseases; after the appearance of the rash, the only disease for which it can be mistaken is measles: see that title for a notice of the distinctive characters of the two affections.

There is no disease in which the final result is more uncertain.

Whether the disease is contagious throughout its course, or only at one particular period, is unknown; and the physician, when asked how soon the danger of imparting the disease on the one hand, or catching it on the other, is over, may candidly declare that he does not know. That the contagion remains attached to furniture, carpets, clothing, even walls of a room, etc., for a long period, is undoubted. Dr. Watson gives a remarkable instance of a small piece of infected flannel communicating S. after the interval of a year.

The popular delusion that *scarlatina* is a mild and diminutive form of *scarlet fever* is dangerous, as the error may do much harm by leading to disregard of those precautions which are always necessary in this disease.

## SCARLATTI—SCARMOGE.

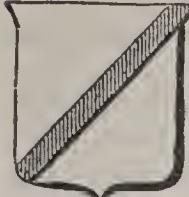
**SCARLATTI**, *skár-lát'tē*, ALESSANDRO: musician of great eminence : 1659–1725, Oct. 24; b. Trapani, in Sicily. He is said to have studied under Carissimi ; if so, it must have been when very young. In 1680 S. visited Rome, and composed his first opera, *L'onestù nell'amore*, performed first at the court of Queen Christina of Sweden. His opera *Pompeo* was performed at Naples 1684. In 1693, he composed the oratorio, *I Dolori di Maria sempre Vergine*, and the opera *Teodora*, in which first were introduced orchestral accompaniments to the recitatives, and a separate design given to the accompaniments to the airs. In the following eight years, during part of which time he held the office of *maestro di capella* at Naples, he produced various operas, the most remarkable being *Laodicea e Berenice* 1701. 1703–09 he was *maestro di capella* at Santa Maria Maggiore at Rome ; he then returned to Naples ; and 1715, produced *Il Tigrane*. His musical works comprise 117 operas, several oratorios, and a great deal of church music, besides various madrigals and other chamber music. He was the founder of the Neapolitan school, in which were trained most of the great musicians of the 18th c., and whose influence can be traced in the works of almost every composer who has flourished since. His invention was rich and bold, his learning great, and his style pure. His modulations, often unexpected, are never harsh, and never difficult for the voice. Very few of his works have been published.—His son, DOMENICO S. (1685–1757), was the first harpsichord player of his day : among his compositions are sonatas remarkable for invention, graceful melody, and skilful construction.—Domenico S. had a son, GIUSEPPE S. (1718–96), also an eminent musician.

**SCARLET**, n. *skár'lét* [F. *écarlate*; OF. *escarlate*; It. *scarlatto*; Ger. *scharlach*, scarlet]: a bright red color, brighter than crimson: ADJ. of the color of scarlet. Scarlet color for dyeing is furnished generally by Cochineal (q.v.) which is very extensively used: a solution of tin and cream of tartar is employed as the mordant to fix it. Scheffer, who produced the best formula for dyeing this color, added starch, the proportions being as follow for 100 lbs. of wool or cloth: Starch, 9 lbs.; cream of tartar, 9 lbs. 6 oz.; solution of tin, 9 lbs. 6 oz.; and cochineal, 12 lbs. 4 oz. SCARLET BEAN or RUNNER, a plant, so called from the color of its flowers; the *Phasēolus multiflorus*, ord. *Legum'inosæ*, sub-ord. *Papiliōnacæ* (see KIDNEY BEAN). SCARLET FEVER, a dangerous and very contagious fever, especially to the young (see SCARLATINA). SCARLET OAK, SCARLET BEECH, etc., applied to varieties of those trees having reddish leaves.

**SCARMOGE**, n. *skár'mōj*, SCAR'MOGES, n. plu. -*mō-jēz*; OF. for SKIRMISH, SKIRMISHES.

## SCARP—SCARRON.

**SCARP**, n. *skârp*, or **ESCARP** [F. *escarpe*; Sp. *escarpa*; It. *scarpa*, the slope of a wall or steep front of a fortification]: the interior slope in a ditch before a fortified place: V. to cut down so as to make perpendicular, or nearly so, as to *scarp* a rock or a ditch. **SCARP'ING**, imp. **SCARPED**, pp. *skârpt*: ADJ. having a steep face; worn or cut down like the scarp of a fortified place. See **ESCARP**.



**Scarp.** SCARP, n. *skârp* [sec **SCARF** 1]: shoulder-belt or scarf worn by military commanders. in *her.*, diminutive of the bend sinister, being half the breadth of that ordinary.

**SCARPA**, *skâr'pâ*, ANTONIO: anatomist, ; 1747, June 13—1832, Oct. 30; b. Castello-Motta, village in the Friuli, n. Italy. He was educated at Padua, where he acted as sec. to the octogenarian Morgagni, who had lost his sight, and with whom S. read the Latin authors—gaining an elegant Latin style. In 1772, he was appointed prof. of anatomy in Modena; and in 1783, at Pavia. He became one of the great clinical surgeons in Europe. S. published in rapid succession medical treatises, which, especially one on the innervation of the heart, gave him wide repute. But his greatest achievement was on Hernia (1809). His last three years were spent in total blindness. He died at Pavia.

**SCARPANTO**, *skâr'pân-tô* (anc. *Carpathos*): island in the Mediterranean, belonging to Turkey, midway between the islands of Rhodes and Crete; 32 m. long, about 8 m. in extreme breadth, and its surface is covered with bare mountains, which reach the height of 4,000 ft. Ruins of towns, in several places, indicate that formerly the island was well peopled. The people are now mostly workers in wood. Pop. about 5,000.

**SCARRON**, *skâ-rông'*, PAUL: poet, dramatist, and novelist, creator of French burlesque: 1610, prob. July 4—1660, Oct. 6; b. Paris; son of a counselor of parliament, a man of fortune and good family. About 1634, S. visited Italy, where he made the acquaintance of Poussin the painter. On his return to Paris, he delivered himself over to a life of very gross pleasure, the consequence of which was that, in less than four years, he was seized with permanent paralysis of the limbs. What makes this incident in his career still interesting is the fact that it undoubtedly exercised no inconsiderable influence on the development of his peculiar genius, which, as a French critic justly says, was ‘the image of his body.’ His love of burlesque, of malicious buffoonery, of profane gaiety, was his way of escape through the gates of mockery from the *tournemens vêhemens* of his incurable ailment. His scramble for the means of living may be partly excusable in view of his hapless infirmity. He wrote verses, flattering dedications, begging-letters for pensions, etc.; and 1643 he even managed to get a benefice at Mans, which he held three years, when he returned to Paris, and lived in a sort of elegant

## SCART—SCATH.

Bohemian style. He had a pension from Mazarin of 500 crowns; but having, in a fit of absurd indignation, lampooned Mazarin with spleenful virulence, he lost the pension.

It might have fared hard with the physically helpless poet, had other friends not started up—e.g., Fouquet, who granted him a pension of 1,600 crowns—and had he himself not been a most consummate beggar. He would take any conceivable gift, large or small; nothing came amiss. His importunities were so pleasantly worded that they did not estrange the friends on whom he fastened. In 1652 S. married Françoise d'Aubigné—a girl of 17, who subsequently became the mistress of Louis XIV., the famous Madame Maintenon (q.v.). It is a proof of the charm of his company that his rooms were frequented by most of the men and women of his day who were distinguished either in literature or society. Among his works are *Le Typhon*, *Virgile Travesti* (Par. 1648–52), *La Mazarinade* (1649), *La Baronade Léandre et Héro*, *Ode Burlesque*, *La Relation du Combat des Purques et des Poëtes sur la Mort de Voiture*, *Poésies Diverses* (Par. 1643–51), comprising sonnets, madrigals, epistles, satires, songs, etc.; *Le Roman Comique* (Par. 1651), a most amusing account of the life led by a company of strolling players—it is the best known, and probably the best, of all S.'s productions (repub. by Victor Fournel, 1857); *Nouvelles Tragicomiques*, from one of which (*Les Hypocrites*) Molière took the idea of *Tartufe*; besides a number of clever but coarse comedies. The editions of his works are very numerous; the best is that of Bruzen de la Martinière (Amster., 10 vols, 1737; Par. 7 vols. 1786).

SCART, n. *skárt*, sometimes SCARF, n. *skárf* [Icel. *scarfr*; Gael. *sgarbh*]: in *Scot.*, a cormorant.

SCAT, or SCATT, n. *sküt* [Icel. *skattr*; Dan. *skat*; AS. *sceat*, money, a tax]: in *Orkney* and *Shetland*, the name of a certain tax on land. To PAY SCAT AND LOT, to pay shares in proportion; same as SCOT AND LOT. SCATHOLD, n. *skät'höld*, open ground for pasture, or for peats.

SCATCHES, n. plu. *skäch'ëz* [F. *échasses*, stilts: O. Flem. *schætse*]: stilts for walking in dirty places.

SCATH, or SCAITH, or SCATHE, n. *skäth* [Goth. *skathjan*; Ger. and Dut. *schaden*, to injure: Icel. *skadi*; AS. *sceatha*, damage, hurt: comp. Gael. *sgàth*, to destroy]: damage; injury; harm; in *OE.*, waste; depopulation. SCATHE, or SCAITH, v. to damage; to injure. SCATH'ING, imp. SCATHED, pp. *skätht*. SCATHFUL, a. *skäth'fūl*, in *OE.*, mischievous; destructive. SCATH'LESS, a. *-lës*, without damage or injury.

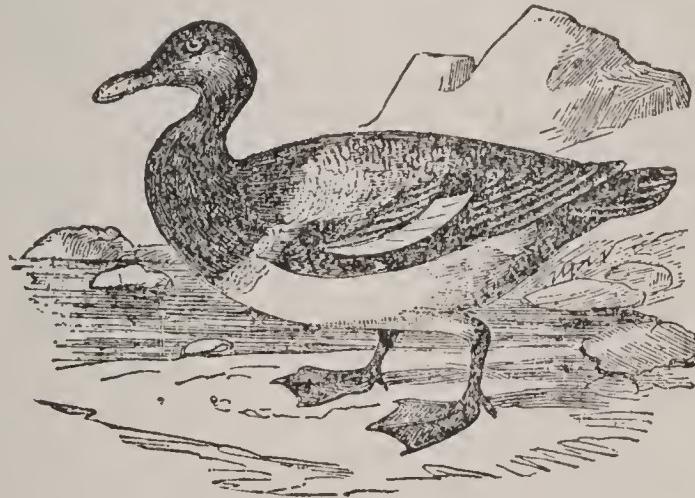
## SCATTER—SCAUR.

**SCATTER**, v. *skăt'ĕr* [Dut. *schetteren*, to resound, to scatter: AS. *scateran*, to scatter]: to throw loosely or thinly about; to strew; to disperse or dissipate; to be dispersed. **SCATTERING**, imp.: ADJ. dispersing among many: N. act of dispersing or distributing; something scattered, generally in plural, **SCATTERINGS**. **SCATTERED**, pp. *-tĕrd*: ADJ. dispersed; thinly spread; dissipated; in *bot.*, without apparent symmetry in arrangement. **SCATTEREDLY**, ad. *-tĕr-ĕd-lĭ*, in a scattered manner; dispersedly. **SCATTERINGLY**, ad. *-lĭ*, in a scattered or dispersed manner. **SCATTERGOOD**, n. one who wastes; a spendthrift.—SYN. of ‘scatter’: to spread; disperse; sprinkle; dissipate; strew.

**SCATTERY ISLAND**, *skăt'tĕh-rĭ*: small islet in the estuary of the Shannon, Ireland; three m. s.w. of the town of Kilrush. Besides a fort, the islet contains fragments of several small churches, and an ancient round tower 120 ft. high.

**SCAUP**, n. *skawp* [a corruption of **SCALP**, which see]: in *Scot.*, very poor land; a sea-fowl: see **SCAUP DUCK**.

**SCAUP DUCK**, *skawp dŭk* (*Fuligula*—or *Nyroca-marila*): oceanic species of duck, of the same genus with the Pochard (q.v.), inhabitant of the n. parts of the world, spending the summer in arctic or subarctic regions, and visiting the coasts of Europe as far s. as the Mediterranean in winter. It is seen in winter in great flocks in the United States, not only on the sea-coast, but also on the Ohio,



*Seaup Duck (*Fuligula marila*).*

Mississippi, and other rivers. It breeds in fresh water swamps. In size it is nearly equal to the Pochard. The male has the head, neck, and upper part of the breast and back black, cheeks and sides of the neck glossed with rich green; back white, spotted and striped with black lines; wing-coverts darker than the back, speculum white; rump and tail-coverts black. The female has brown instead of black, and old females have a broad white band around the base of the bill. The flesh is tough, and has a strong fishy flavor.

**SCAUR**: see **SCAR** 3.

## SCAVENGER—SCEPTRE.

SCAVENGER, n. *skāv'ēn-jér* [OE. *scavage*, originally the inspection of customizable goods brought to market within the city of London; *scavagers*, officers whose duty it was to take custom upon the *scavage*, afterward applied to inspectors of the streets, then to the cleaners—from AS. *sceawian*, to view, to inspect, to show: *scavenger* stands for *scavager* as *passenger* for *passager*]: one employed in cleaning streets; one engaged in a mean or dirty occupation: V. to clean streets or dirty places. SCAVENGERING, imp. SCAVENGERED, pp. *-jérd*.

SCEATTÆ: see NUMISMATICS.

SCENE, n. *sēn* [F. *scène*—from L. *scēna*; Gr. *skēnē*, the stage, the scene of a theatre: It. *scena*]: many objects, actions, and events, forming one whole, displayed at one view: the place of action or occurrence; the stage of a theatre; a part of a play; in a *theatre*, the place where the action passes; certain stage paintings, etc.; an exhibition of strong feeling between two or more persons; a large painted view generally; the place where anything has been done or suffered. SCENA, n. *sū'na* [It.]: a scene or portion of an opera; solo for a single voice, in which various dramatic emotions are displayed. SCENARIO, n. *sě-nū'rī-ō* [It.]: preliminary sketch of the scenes and main points of an opera libretto or a play (also see THEATRE). SCENERY, n. *sēn'-ēr-ī*, the general appearance of a district of country; a widely extending panoramic view of the beauties or grandeur of nature; the painted representation of places, etc., used on the stage. SCENIC, a. *sēn'ik* or *sēn'īk*, or SCENICAL, a. *-i-käl*, pertaining to scenery; dramatic. SCENICALLY, ad. *-lī*. SCENE-SHIFTER, one who changes the scenes of a theatre when needed.

SCENOGRAPHIC, a. *sēn'ō-grāf'īk*, or SCENOGRAPHICAL, a. *-i-käl* [Gr. *skēnē*, a scene; *graphō*, I write]: drawn in perspective. SCENOGRAPHICALLY, ad. *-lī*. SCENOGRAHY, n. *sēn-ōg'rā-fī*, the art perspective.

SCENT, n. *sēnt* [F. *sentir*, to feel, to smell—from L. *sentirē*, to discern by the senses: the *c* in *scent* is intrusive]: that which proceeds from a body and affects the olfactory nerves; smell, good or bad; perfume (see PERFUMERY); odor: power of smell; course of pursuit by smell; track: V. to perceive by the olfactory nerves; to smell; to perfume. SCENT'ING, imp. SCENT'ED, pp.: ADJ. perfumed; imbued with odor. SCENT'LESS, a. *-lēs*, without scent. ON THE RIGHT SCENT, on the track that leads to the object aimed at—alluding to dogs following game by scent.

SCEPTIC, SCEPTICISM, etc.: see SKEPTIC.

SCEPTRE, *sēp'tér* [F. *sceptre*—from L. *sceptrum*, a royal staff, a sceptre—from Gr. *skēptron*, a staff to lean upon, a sceptre—from *skēptō*, I lean]: originally a staff or walking-stick, hence in course of time, also a weapon of assault and of defense. At a very early period the privilege of carrying it came to be connected with the idea of authority and station. Both in the Old Test. and in Homer, the most solemn oaths are sworn by the S., and Homer speaks

## SCHADOW—SCHAFF.

of the S. as an attribute of kings, princes, and leaders of tribes. According to Homer, the S. descended from father to son, and might be committed to any one to denote the transfer of authority. Among the Persians, whole classes of persons vested with authority, including eunuchs, were distinguished as the ‘sceptre-bearing classes.’ The S. was in very early times a truncheon pierced with gold or silver studs. Ovid speaks of it as enriched with gems, and made of precious metals or ivory. The S. of the kings of Rome, afterward borne by the consuls, was of ivory surmounted by an eagle. While no other ensign of sovereignty is of the same antiquity, it has kept its place as a symbol of royal authority through the middle ages and to the present time. There has been considerable variety in its form: the S. of the kings of France of the first race was a gold rod as tall as the king himself. SCEP'TRELESS, a. -*lēs*, without kingly power. SCEP'TRED, a. -*tērd*, invested with the ensigns of royalty; bearing a sceptre.

SCHADOW, *shā'dō*, GODENHAUS FRIEDRICH WILHELM VON: distinguished German painter, of the Düsseldorf school; 1789, Sep. 6—1862, Mar. 19; b. Berlin; son of Johann Gottfried S. (1764—1850, b. Berlin, eminent sculptor, director of the Berlin Acad. of Arts). During young S.’s first visit to Rome, the influence of Overbeck, Cornelius, Führich, Veit, etc., awoke his dormant genius, and both singly and in company with some of these artists, he executed several pictures remarkable for depth of religious sentiment; e.g., *An Explanation of the Dream of Joseph*, and *The Grief of Jacob when told of the Death of his Son*. While in Rome he became a Rom. Catholic. Returning to Berlin he was appointed prof. of the Acad., and soon gathered round him a host of brilliant pupils; but 1826 he went to Düsseldorf as successor of Cornelius in the direction of the notable academy there. His pupils followed him; and ever since the ‘Düsseldorf School’ has been associated specially with their names. S.’s principal works are *Mignon* (1828), *The Four Evangelists*, *The Wise and Foolish Virgins*, *The Source of Life*, *The Assumption*, and *Heaven. Purgatory, and Hell*. S. was ennobled 1843. *Der Moderne Vasari* (1854) is a book from his hand.

SCHAFF, *shāf*, PHILIP, S. T. D., LL.D.: theologian and author: 1819, Jan. 1—1893, Oct. 20; b. Switz. His education, begun at home, was pursued in the Stuttgart Gymnasium, and the universities of Tübingen, Halle, and Berlin. After travelling as private tutor of a nobleman, he was lecturer on church history and biblical exegesis in the Berlin Univ. two years. Called to a chair in the Mercersburg Theol. Seminary, Penn. German Ref.), he came 1844, and the next year was tried and acquitted of a heresy which proved to be good old wine in new bottles. In 1863 he came to New York where he thereafter resided, at first as sec. of the N. Y. Sabbath Committee, 1864–69, and lecturer on church hist. at Union Theol. Seminary, New York, and at Hartford and Andover theol. seminaries. In 1870, he became prof. of sacred literature in the Union Theol.

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Seminary. He was very prominent in the work of the Evangelical Alliance and of Bible revision, having been a founder and hon. sec. of the former, in behalf of which he has repeatedly visited Europe. He was pres. of the Amer. Bible Revision Committee. While he was in service at Mercersburg, he represented the Germ. Ref. churches as delegate to Frankfort and Basel; and later, 1875, had part in the Old Catholic, Greek, and Protestant conference at Bonn. He helped organize, and was first pres. of the Amer. Soc. of Church Hist. He was very energetic, and known for his genial vivacity, wide learning, and boundless literary activity. His numerous works include *Hist. of Apostolical Christianity* (1853); *Sketch of the Political, Social, and Religious Character of the United States* (1855); *Germany, its Universities, Theology, and Religion* (1857); *Hist. of the Christian Church* (1858-88); *The Christ of the Gospels* (1864); *The Person of Christ, with Replies to Strauss and Renan* (1865); *Revision of the Eng. Version of the N. Test.* (1874); *The Vatican Council* (1875); *History and Collection of the Creeds of Christendom* (1876); *Harmony of the Ref. Confessions* (1877); *Through Bible Lands* (1878); *Dic. of the Bible* (1880); *Companion to the Gr. Test. and the Eng. Version* (1883); *Hist. Account of the Work of the Amer. Revision Committee* (1885); *Christ and Christianity* (1885); *Church and State in the United States*, etc. (1888); *The Renaissance: Revival of Learning and Art in the Fourteenth and Fifteenth Centuries* (1891), also works on religious poetry and Germ. hymns. He edited the Amer. ed. of *Lange's Commentary*, and was co-editor of the *Philos. and Theol. Library*; he also edited several periodicals and contributed largely to periodical and encyclopedic literature. He was editor of the *Schaff-Herzog Cyclopædia of Biblical Literature*.

SCHAFFHAUSEN, *sháf-how'zen*: most northern canton of Switzerland, bounded on all sides but the s. by the duchy of Baden; 112 sq. m. The chief river is the Rhine, which forms part of the s. boundary, and within whose basin the canton is wholly included. The surface is hilly, especially in the n. and e., and of the many rich valleys that slope s. to the Rhine, that of the Klettgau is famous for unusual fertility, and for its wines, whose bouquet is peculiarly fine. The climate is mild; the soil, mostly calcareous, is generally fruitful, and agriculture is the principal industry. Grain, fruits, flax, hemp, and wine are the chief crops. Iron is obtained. The sovereignty is usually exercised by the great council of 600 members, wholly renewed by ballot every 4 years; but the people have the right of veto. S. sends two members to the national council.—Pop. (1880) 38,348, of whom about 34,000 were Protestants; (1888) 37,783; (1900) 41,514.

## SCHAFFHAUSEN—SCHANDAU.

**SCHAFFHAU'SEN:** town of Switzerland, cap. of the canton of S.; beautifully situated on the right bank of the Rhine, immediately above the celebrated falls of that river, about 30 m. w. of Constance. Higher up the slope on which the town stands, is the curious castle of Munoth; and this edifice and the minster founded 1052 are the chief buildings. The town is remarkable for antique architecture. The old wall and gateways of S. also are very picturesque. The people are partly engaged in the manufacture of iron, cotton, and silk goods. The *Falls of Schaffhausen*, about three m. below the town, are, perhaps, the most imposing spectacle of the kind in Europe. The river is here 300 ft. broad, and the entire descent is about 100 ft. From a projecting balcony which overhangs the roaring cataract, the visitor may appreciate the full grandeur of the fall.—Pop. (1880) 11,795; (1888) 18,648.

**SCHAKO:** see SHAKO.

**SCHALL, shāl, JOHANN ADAM VON:** Jesuit missionary to China: 1591–1669, Aug. 15; b. Cologne, of noble family. He entered the Jesuit order in Rome 1611, and was one of the mission to China 1620. Having turned to good account among the Chinese his familiarity with mathematical and mechanical science, he formed a flourishing mission, and was ultimately invited to the imperial court at Pekin, where he was entrusted with the compilation of the calendar, and the direction of the public mathematical school, being himself created a mandarin. Such was his favor with the emperor, that, contrary to all the received etiquette, he had the privilege of free access to the presence of Emperor Chun-Tche, founder of the Tartar dynasty (1645), and was honored by visits from the emperor at four stated times in each year. Through this favor with the emperor, S. obtained an edict which authorized the building of Rom. Cath. churches, and the liberty of preaching throughout the empire; and in 14 years the Jesuit missionaries in the several provinces are said to have received into the church 100,000 proselytes. On the death of this emperor, however, a change of policy fatal to the prospects of Christianity took place. The favorable edict was revoked; S. was thrown into prison and sentenced to death. He was afterward liberated, but was again imprisoned till his death. He had acquired mastery of the Chinese language, in which he compiled numerous treatises on scientific and religious subjects. A large MS. collection of his remains in Chinese, 14 vols. 4to, is preserved in the Vatican Library. He translated into Chinese several works, doctrinal and medical.—See Mailly's *Histoire Générale de la Chine* and Huc's *Le Christianisme en Chine*.

**SCHAM'YL:** see SHAMYL.

**SCHANDAU, shán'dow:** town in Saxony, on the Elbe river, 21 m. s.e. from Dresden, 4 m. from the boundary-line of Bohemia. It is in a region of beautiful and impressive scenery, known as the Saxon Switzerland; and is visited every summer by several thousand tourists. Permanent pop. about 3,000.

## SCHASBURG—SHAW.

SCHÄSBURG, or SCHÄSSBURG, *shēs'bürch* (Magyar, *Segesvár*): town of Austria, in Transylvania, on the Great Kokel. It consists of the Burg or Upper-Town and the Lower-Town. Pop. about 10,000.

SCHAUFFLER, *shouf'flér*, WILLIAM GOTTLIEB, D.D., LL.D., PH.D.: 1798, Aug. 22—1883, Jan. 26; b. Stuttgart, Germany. When he was six years of age he was taken by his parents to Odessa, Russia, where he remained more than 20 years. He was confirmed in the Lutheran Church 1813, but took no special interest in religious matters till 1820, when he resolved to become a missionary. His education was very limited, and, after spending some time in Turkey with Joseph Wolff, he was induced by Rev. Jonas King (of Smyrna) to come to this country. He remained here five years, part of the time working at his trade of turner, and giving the remainder to study. He graduated from the Andover Theol. Seminary, and after giving a year to study of various languages was sent to Paris by the Amer. Board for study of the Persian, Arabic, and Turkish languages under competent teachers. He then went to Constantinople, where he was active in mission work; and, for the benefit of the Jews, in whom he was greatly interested, revised the Old Testament in Spanish, giving the Hebrew in parallel columns. The Brit. and Foreign and the Amer. Bible Societies commissioned him to translate the Bible into the Osmanli-Turkish language. To this great work he gave 18 years of unremitting toil, and on its completion received the degree D.D. from the University of Halle 1867, and 10 years later that of LL.D. from Princeton College. He was master of 19 languages, and in 6 of them was able to preach extemporaneously. He published in Spanish a grammar of the Hebrew language, and a Hebrew and Chaldee lexicon of the Old Test. A collection of his sermons, preached in Constantinople, and printed in Boston 1837, with the title *Meditations on the Last Days of Christ*, has passed through several editions. He died in New York.

SCHAUMBURG-LIPPE, *shoum'bürch-lip'peh*: sovereign German principality, the w. part of the former county of Schaumburg; bounded w. by Westphalia, and n. by Hanover; 170 sq. m. Till 1866, the constitution was on the ancient patriarchal basis; but since then, S.-L. has a representative diet of 15 members, 10 elected by the towns and the country districts, the rest by the prince, the nobility, and the clergy and educated classes. It has one vote in the federal council of the German empire, and sends one deputy to the Reichstag. The revenue of S.-L. 1882-3 was about \$132,000; the expenditure balanced it. The debt amounted to about \$90,000, besides about \$272,160 as quota toward the paper money of the empire. Pop. (1880) 35,374; (1890) 39,183; (1900) 43,132.

SCHAW, or SHAW, n. *shaw* [Icel. *skogr*; Dan. *skov*, a wood: Dut. *schawe*, shade, shelter]: in *OE.*, and *Scot.*, a wood or thicket; the shade and shelter of the woods.

## SCHEDULE—SCHEFFER.

SCHEDULE, n. *skēd'ūl*, in England *shēd'ūl* [L. *shedūla*, a small leaf of paper—from *schēda*, a sheet or leaf of paper—from *scindo*, I split: OF. *schedule*]: a sheet of paper or parchment containing a written or printed list, inventory, or table; a list or inventory attached to another document; a little inventory: V. to catalogue; to put or place in a list. SCHED'ULING, imp. SCHEDULED, pp. -*ūld*.

SCHEELE, *shā'lēh*, Sw. *shī'līh*, KARL WILHELM: Swedish chemist: 1742, Dec. 19—1786, May 21; b. Stralsund. After an incomplete education, he was apprenticed to an apothecary at Gothenburg, where he laid the foundation of his knowledge of chemistry. In 1767 he settled at Stockholm as apothecary; and 1770 removed to Upsala, where Bergmann was prof. of chemistry. Here he carried on investigations in chemical analysis which proved fruitful in important discoveries and placed their author by the side of Linnæus and Berzelius, his countrymen—in the front rank of science. In 1777 he removed to Köping. The chief of his discoveries were tartaric acid (1770), chlorine (1774), baryta (1774), oxygen (1777), and glycerine (1784). Oxygen had been previously made known through the labors of Priestley, though S. was not aware of this till after his own discovery. In experimenting on arsenic and its acid, he discovered the arsenite of copper, known as a pigment under the name *Scheele's Green* or *Mineral Green*. In 1782, during a delicate and subtle investigation to determine the nature of the coloring-matter in Prussian Blue, he obtained, for the first time, prussic acid in separate form.—See his work *Air and Fire* (1777), and communications to the Acad. of Stockholm.

SCHEELE'S GREEN, n. *shēlz' grēn* [after Scheele, Swedish chemist]: green pigment, consisting of an arsenite of copper, first prepared by Scheele, much used as an oil and water color (see ARSENIOUS ACID). SCHEELETINE, n. *shēl'ē-tīn*, a mineral of a green, yellow, brown, or red color, being a native tungstate of lead, and consisting of tungstic acid and lead. SCHEEL'ITE, n. -*īt*, tungstate of lime, found in the veins of the older rocks in four-sided pyramidal crystals, or in granular crusts of a gray, white, yellow, or brownish color. SCHEELIUM, n. -*li-ūm*, an obsolete name sometimes applied to tungsten.

SCHEERERITE, n. *shēr'ē-rīt* [after the discoverer, Von Scheerer]: mineral resin occurring in brown coal and peat.

SCHEFFER, *shēf'fēr*, F. *shéfr*, ARY: French painter. 1795, Feb. 10—1858, June 15; b. Dort, Holland. He studied under Guerin of Paris, and made his début as an artist 1812. Some years later appeared his *Mort de Saint-Louis*, *Le Dévouement des Bourgeois de Calais*, and several genre pieces, e.g., *La Veuve du Soldat*, *Le Retour du Conscriit*, *La Sœur de Charité*, *La Scène d'Invasion*, etc., popularized in France by engravings; but compared with his later performances, these early pictures have little merit. It was not till the 'Romantic' movement reached art that S. became conscious of his peculiar power. The influence of Goethe and Byron became conspicuous in his choice of

## SCHEIK—SCHELDT.

subjects, and to his always remarkable facility of execution he added subtlety and imaginative grace. The public lavished eulogy on his *Marguerite à son Rouet*, *Faust tourmenté par le Doute*, *Marguerite à l'Église*, *Marguerite au Sabbat*, *Marguerite sortant de l'Église*, *Marguerite au Jardin*, *Marguerite à la Fontaine*, *Les Mignons*, *Le Larmoyeur*, *Francesca de Rimini*, etc. Toward 1836, his art underwent its third and final phase—the religious. To this class belong *Le Christ Consolateur*, *Le Christ Rémunérateur*, *Les Bergers conduits par l'Ange*, *Les Rois Mages déposant leurs Trésors*, *Le Christ au Jardin des Oliviers*, *Le Christ portant sa Croix*, *Le Christ enseveli*, and *Saint Augustin et sa Mère Sainte Monique*. S. executed some remarkable portraits; among others, those of La Fayette, Béranger, Lamartine. He died at Argenteuil, near Paris. His sentiment has been criticised as extreme by the best taste of recent years.

SCHEIK: see SHEIK.

SCHELDT, *skēlt* (or SCHELDE, *skēl'dēh*), THE (Lat. *Scaldis*, Fr. *l'Escaut*): river, rising in the French dept. of Aisne, flowing n. to Cambrai, Valenciennes, Bouchain, and Condé (75 m. in France), when, entering Belgium, it passes Doornik, Oudenarde, Ghent, Dendermonde, Rupelmonde, and Antwerp, having received, among other tributaries, the Lys, Dender, and Rupel; total length about 250 m. Navigable from its entrance into Belgium (137 m. in Belgium), the S. at Antwerp becomes a noble river, of sufficient depth (49 ft. at high tide) for large ships. From Antwerp, the course is n.w., to Fort Bath, in the Netherlands (37 m. in the Netherlands), where, at the island of South Beveland, it divides into two arms. The left or s., called the Honte or Wester S., takes a w. direction s. of the islands of Zeeland, and meets the North Sea at Flushing; the n. or right arm, called the Kreekerak, flows between Zeeland and N. Brabant, near Bergen-op-Zoom, dividing again into two branches—the left, called the Easter S., passing between the islands of Tholen and Schouwen on the right, and the Bevelands on the left, reaches the sea through the Roompot (*Romanorum portus*); the other branch, flowing between N. Brabant and Zeeland, discharges itself by several passages. These several mouths of the S., forming various islands, are called the Zeeland streams: the natural channels are so numerous and so intermingled with artificial canals, that the original course of the S. cannot now be discovered. The Easter S., probably the ancient main channel, has since 1867 been almost choked with sands: the Wester S. was probably enlarged by a storm 1173.

The Dutch had long monopolized the navigation of the lower S.; and by the treaty signed in London 1839, the Netherlands secured the right of levying 2s. 6d. (about 62 cents) per ton on all vessels. By a treaty signed at Brussels 1863, this toll has been bought up, nominally by Belgium, but in reality from a sum of £750,000 (about \$3,750,000) paid to that country by the powers whose ships navigate the S., the proportion falling to Great Britain being fully £350,000.

## SCHELL—SCHELLING.

SCHELL, *shĕl*, AUGUSTUS: 1812, Aug. 1—1884, Mar. 27; b. Rhinebeck, N. Y. He graduated from Union College 1830, studied law, settled in New York, and secured an extensive practice. He became prominent in politics 1852 as chairman of the Tammany Hall committee and candidate for gov., was chairman of the democratic committee of N. Y. 1853–56, declined the nomination of mayor of New York 1854, was collector of the port of New York 1857–61, engaged in railroad enterprises, was one of the leading members of the committee that revised the state constitution 1867, and 1878 was a defeated candidate for mayor of New York. He was on the board of directors of several large corporations, and was interested in various philanthropic movements. He died at New York.

SCHELLENBERG, *shĕl'lĕn-bĕrĕh*: village in the s.e. of Upper Bavaria, six m. s.w. of the Austrian town of Salzburg, near which occurred the first battle of the ‘War of the Spanish Succession,’ in which the English took part. Maximilian-Emmanuel, Elector of Bavaria, had fortified the hill of S. to resist the progress of Marlborough; but 1704, July 4, the work was attacked by the English, led by Prince Ludwig of Baden, and carried by storm after a bloody fight.

SCHELLING, *shĕl'ĕng*, FRIEDRICH WILHELM JOSEPH VON: illustrious German philosopher: 1775, Jan. 27—1854, Aug. 20; b. Leonberg, in Würtemberg. He studied at Tübingen and Leipzig, and 1798 proceeded to Jena, then the headquarters of speculative activity in Germany, through the influence of Reinhold and Fichte. S.’s philosophical tendencies were originally determined by Fichte; in fact, he was at first only an expounder, though an eloquent and independent one, of the Fichtian idealism, as one may see from his earliest speculative writings, *Über die Möglichkeit einer Form der Philosophie* (On the Possibility of a Form of Philosophy, Tüb. 1795), *Vom Ich als Prinzip der Philosophie* (Of the Ego as the Principle of Philosophy, Tüb. 1795), and others. Gradually, however, S. diverged from his teacher, and commenced what is regarded as the second phase of his philosophy. Fichte’s idealism now seemed to him one-sided and imperfect through its rigorous and exclusive subjectivity, and he sought to harmonize and complete it. The result of his speculations, in this direction, was the formerly famous *Identitätsphilosophie* (Philosophy of Identity), which claimed to show that the only true knowledge, therefore the only philosophy, was that of the Infinite-absolute, in which the ‘real’ and ‘ideal,’ ‘nature’ and ‘spirit,’ ‘subject’ and ‘object,’ are recognized as absolutely the same; and which affirmed the possibility of our attaining to such knowledge by a mysterious process, known as ‘Intellectual Intuition.’ The ‘philosophy of identity,’ though only the second stage in S.’s speculative career, is the most important, and is the one by which he became best known in England—Sir William Hamilton having elaborately discussed it, and endeavored to demonstrate its untenability.

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in his essay on the 'Philosophy of the Conditioned' (see *Discussions in Philosophy and Literature, Education and University Reform*, 1852). The principal works in which it is more or less completely developed are *Ideen zu einer Philosophie der Natur* (Ideas toward a Philosophy of Nature, Leipz. 1797, 2d ed. 1803); *Von der Weltseele, eine Hypothese der Höhern Physik zur Erläuterung des allgemeinen Organismus* (Of the World-soul, an Hypothesis of the higher Physics in Elucidation of the Universal Organism, Hamb. 1798, 3d ed. 1809); *Erster Entwurf eines Systems der Naturphilosophie* (First Attempt at a Systematic Philosophy of Nature, Jena 1799); and *System des Transcendentalen Idealismus* (System of Transcendental Idealism, Tüb. 1800). In 1803, after the departure of Fichte from Jena, S. was appointed to succeed him, but in the following year went to Würzburg, whence, 1808, he was called to Munich as sec. to the Acad. of Arts, and was ennobled by King Maximilian-Joseph. Here he lived 33 years, during the last 14 of which he occupied the chair of philosophy in the newly established Univ. of Munich; but 1841 he accepted a call from Friedrich-Wilhelm IV. to Berlin, where mainly he resided for the rest of his life. He died at the baths of Ragaz, in Switzerland.

We revert to S.'s philosophical career. Its third period, if not its third phase, is marked chiefly by incessant controversy. Except *Bruno, oder über das Göttliche und Natürliche Princip der Dinge* (Bruno, a Dialogue concerning the Divine and Natural Principle of Things, Berl. 1802), and *Vorlesungen über die Methode des Akademischer Studiums* (Lectures on the Method of Academical Study, Stuttg. and Tüb. 1803), most of S.'s writings are polemical—often hotly so. The most notable are: *Philosophie und Religion* (Tüb. 1804), in reply to Eschenmayer; *Denkmal der Schrift von den Göttlichen Dingen* (Tüb. 1812), in reply to Jacobi; and *Darlegung des Wahren Verhältnisses der Naturphilosophie zur verbesserten Fichte'schen Lehre* (Statement of the True Relation of the Nature-philosophy to the Improved Fichtian Doctrine, Tüb. 1806). Meanwhile a most formidable adversary had risen up in his old college-friend Hegel (q.v.), who was at first an ardent disciple of S.'s, as Schelling had been of Fichte, but who had, in a similar manner, broken away, and was now pursuing an independent and professedly antagonistic course of speculation. During the reign of Hegelianism, S. preserved almost unbroken silence. For more than 20 years he published almost nothing, but we know that he was far from being idle. He was observing narrowly the practical as well as the speculative results of the rival system, and maturing his own philosophy for the final phase which it assumed, and which he called, variously, the 'positive,' the 'historical,' and the 'system of Freedom'—the design of which was to interpret, at once philosophically and reverentially, the history, especially the religious history, of mankind. S. admitted that his earlier speculations, though sound in themselves, attained only to 'negative' truth; and to show that the most transcendental metaphy-

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sician need not be a Pantheist, but might be a believer in a Personal God, or even in a Trinity, with a whole Augsburg Confession beside, he began to apply or develop in a practical way what he conceived to be the principles of his system. It cannot be said that the result has proved satisfactory, though many of his contemporaries thought it would—Neander, e.g., dedicating to him, in eulogistic terms, the first vol. of the *Kirchengeschichte*, on the ground that it was in harmony with S.'s new philosophy. The writings that contain the fruits of S.'s latest thinking were for the most part posthumously published, though a general idea of them had become known to the public through such lectures as those on the *Philosophy of Mythology* and the *Philosophy of Revelation*. S.'s *Sämtliche Werke* (14 vols. Stuttg. 1856–61) were edited by his sons, Karl Friedr. Aug. S. and Hermann S. His Correspondence was published at Munich 1863. Various French writers, such as Matter, Rémusat, Cousin, Michelet, have tried (with indifferent success) to explain the great mystic to their countrymen; and English philosophical literature is dubiously associated with his name, through what may be called the somnambular plagiarisms of a kindred genius, Samuel Taylor Coleridge: these were pointed out first by Prof. Ferrier in *Blackwood's Magazine*, 1840, March.

**SCHEM**, *shém*, ALEXANDER JACOB: author: 1826, Mar. 16—1881, May 21; b. Wiedenbrück, Prussia. He was educated at Bonn and Tübingen; came to this country 1851, was prof. of languages in Dickinson College 1854–60, was connected with the *New York Tribune* 1860–69, and assistant supt. of schools in New York 1874–81. He edited the *Deutsch-amerikanisches Conversations-Lexicon* (11 vols.), was on the editorial staff of the *Methodist* and the *Methodist Quarterly Review*, was a contributor to various cyclopedias, and published several valuable statistical works. He died at West Hoboken, N. J.

**SCHEME**, v. *skēm* [L. and Gr. *schēma*, shape, fashion, outline]: to plan; to contrive; to form a plan: N. a connected combination of things contrived toward some end; a plan; a project; a contrivance; a diagram to illustrate; an astrological diagram. **SCHEMING**, imp.: ADJ. given to forming schemes; intriguing; artful: N. the act of one who schemes. **SCHEMED**, pp. *skēmd*. **SCHEMER**, n. -*ér*, one who schemes; a contriver; a planner.—SYN. of 'scheme, n.': plan; design; purpose; system; project; contrivance; outline; device; plot.

## SCHEMNITZ—SCHENECTADY.

**SCHEMNITZ**, *shém'nits*: largest and most famous mining town of Hungary, in a narrow mountain gorge, 1,054 ft. above sea-level, on the river S., 70 m. n. of Pesth. The acad. for mining and woodcraft, embracing collections of minerals and a chemical laboratory, is the principal building. It is attended by about 200 students, who receive lessons from six professors. Tobacco-pipe heads of esteemed kind are manufactured here. The mines, which extend under the town, have been worked for centuries, though recently they have yielded inconsiderable profit. They produce gold and silver, as well as copper, iron, and sulphur. One of the passages is more than 9 m. long. 12 mines belong to the crown, the others are private property.—Pop. of S. (1880) 15,265; with its six suburbs, 22,000; (1890) 15,280.

**SCHENCK**, *skéenk*, NOAH HUNT, D.D.: clergyman of the Prot. Episc. Chh.: 1825, June 30—1885, Jan. 4; b. Pennington, N. J. He graduated from Princeton College 1844; studied law, and was in active practice 1847–51; studied theology at Gambier (O.) Seminary; and 1853 took orders in the Prot. Episc. Church. After serving parishes in Ohio, Chicago, and Baltimore, he became (1869) rector of St. Ann's Church, Brooklyn, and held this position till his death. He was a delegate of the Evangelical Alliance to Russia 1871. He was founder, and for some time editor, of the *Western Churchman*, and was one of the editors of the *Protestant Churchman*. A volume of his sermons and addresses was published 1885.

**SCHENCK**, ROBERT CUMMING: 1809, Oct. 4—1890, Mar. 23; b. Franklin, O. He graduated from Miami Univ. 1827, studied law, and began practice 1831 at Dayton, O. He was in the state legislature 1841–2, member of congress 1843–51, and U. S. minister to Brazil 1851–53. He entered the Union army at the opening of the civil war, was commissioned brig. gen. 1861, May 17, and promoted maj. gen. 1862, Sep. 18, and served with credit till 1863, Dec. 3, when he resigned and again entered congress, where by re-elections he remained till 1870. He was then appointed minister to Gt. Britain, but before entering on the duties of this office served on the Alabama Joint High Commission. He resigned 1876 on account of charges relating to his connection with the Emma silver-mine fraud, but was fully exonerated by a congressional committee, and by a judicial inquiry in New York. He resumed his law practice and declined a renomination to congress. He died at Washington.

**SCHENE**, n. *skéen* [Gr. *schoinos*, a rush or reed, a measure of distance]: an Egyptian measure of length about  $7\frac{1}{2}$  miles.

**SCHENECTADY**, *ské-nék'ta-dí*: city, cap. of Schenectady co., N. Y.; on the Mohawk river, and on the New York Central and Hudson River and the Delaware and Hudson Canal Co.'s railroads; 17 m. w. of Albany; 6 sq. m. It has an old part with many relics of early Dutch inhabitants, and a new part built up closely; is supplied with water from

## SCHENK-BEER—SCHERZO.

the river by improved works owned by the city; is lighted chiefly by electricity; and has street railroads. The Erie canal bisects the city. Chief among industries are the manufacture of electrical supplies, agricultural implements, knit and woolen goods, boiler and machine-shop products, locomotives, brooms, and flour. The notable buildings include those of Union Univ. (q.v.), new city-hall, co. court-house, new union railroad depot, 1st Ref. Church, in Dutch Gothic style, St. George's Church (Prot. Episc.), which has a bell presented by Queen Anne, and St. Andrew's Home of the Friendless. There are 20 churches, and one main and four ward public schools; 2 national banks (cap. \$200,000), 1 sav. bank (surplus \$178,175), 1 state bank (cap. \$100,000); and 2 daily, 4 weekly, and 1 semi-monthly publications. In 1902 the net public debt was \$925,000; real prop. val. \$17,090,415; personal \$1,961,900; tax-rate \$1.92 on \$100.—S. was an Indian trading-post 1620, was chartered 1684, and made a city 1798. It suffered severely from the early French and Indian wars, and in 1690 was burned, and nearly all its inhabitants were massacred, the bi-centennial of which was commemorated 1890, Feb. 9. Pop. (1870) 11,026; (1880) 13,655; (1890) 19,902; (1900) 31,682.

**SCHENK-BEER**, n. *shēngk'bēr* [Ger. *schenk-bier*—from *schenken*, to pour out, because put on draught soon after being made]: mild German beer; German draught-beer.

**SCHENKEL**, *shēnk'ēl*, DANIEL, D.D.: theologian: 1813, Dec. 21—1885, May 19; b. Switzerland. He studied theology at Bâle and Göttingen, preached at Schaffhausen, and was prof. of theology at Bâle; and 1851 at Heidelberg, where he was also university preacher. His views diverged so much from the ordinary standard as to excite much opposition from the orthodox party. He edited the *Bibel-Lexicon* (5 vols.); founded the German Protestant Union; wrote *Das Wesen des Protestantismus* (3 vols.), *Christliche Dogmatik* (2 vols.), *Das Charakterbild Jesu* (1864), and many other works. He died at Heidelberg.

**SCHERBET**: see SHERBET.

**SCHERIF**, n. *shē-rēf'* [Ar. *sherif*, lord or master]: title in the East given to the descendants of Mohammed through his son-in-law Ali and daughter Fatima; given also to the chiefs of Mecca and Medina; an emir: in English written often *Sherif* (q.v.).

**SCHEROMA**, n. *skē-rō'mā* [Gr. *xēros*, dry]: in *med.*, a dry inflammation of the eye, occasioned by the want of lachrymal secretions.

**SCHERZANDO**, n. *skērts-ān'dō* [It.]: in *mus.*, a lively or droll movement: ADJ. in a playful, lively, or sportive manner.

**SCHERZO**, *skēr'tsō* [It., jest, sport]: in *music*, denoting a passage or movement lively and sportive, forming part of a musical composition of some length, as a symphony, quartette, or sonata.

## SCHEVENINGEN—SCHILLER.

**SCHEVENINGEN**, *skā'vēn-ing-chén*: populous and thriving village in S. Holland, on the coast of the North Sea, about two m. from the Hague. Fishing is the chief industry; ship-building, rope-spinning, and making sailcloth, are carried on. It is the most fashionable sea-bathing resort in the Netherlands, and is visited by many distinguished strangers. There is an excellent ‘Bath House,’ and other hotels. In the neighborhood are summer residences of the royal family and nobility. A range of sand-hills defends the village from the sea, which has, nevertheless, made so great encroachments that the Prot. church, originally in the centre, is now close by the strand. The road from the Hague to S. is a long avenue of fine trees and wooded banks, with a tramway for passengers and goods.—Pop. about 9,000.

**SCHIEDAM**, n. *skē-dām'*: Holland gin, named from the town where chiefly it is made.

**SCHIEDAM**, *skē-dām'*: town in S. Holland, on the Schie, which is connected with the Maas by a canal. The streets are narrow, irregularly built, and, compared with other Dutch towns, dirty, from the distilleries, malting-works, and grain-mills. Gin is so largely manufactured that the air and water smell and taste of it: there are more than 200 distilleries. The neighboring meadows are rich in cattle, fed partly from distillery refuse, of which there is enough to feed about 30,000 pigs. There is extensive manufacture of stearine and glycerine. Beer-brewing, metal-founding, basket-making, cork-cutting, etc., are carried on.—Pop. (1883) 24,196; (1890) 25,260; (1901) 27,069.

**SCHIITES**, n. plu. *shī'ītz*: another spelling of **SHIITES** (q.v.).

**SCHILLER**, *shī'lēr*, JOHANN CHRISTOPH FRIEDRICH VON: one of the greatest poetical geniuses of Germany: 1759, Nov. 10 (or 11)—1805, May 9; b. Marbach, a little town of Würtemberg; son of Johann Kaspar S., overseer of the nurseries attached to a country-seat of the Duke of Würtemberg. S. received his first formal instruction from the parish priest Moser, at Lorch; and 1773 the duke, who thought favorably of S. and his father, offered to educate the boy, free of expense, at the milit. acad. founded by him at the castle of Solitude, and afterward transferred to Stuttgart under the name Karls-schule. Entering the rigorous academy, S. applied himself to jurisprudence, with small success; and after two years he exchanged it for medicine. But literature, especially poetry, was the secret delight of his soul. Already the characteristics of his genius—his tendencies toward epic and dramatic idealism—were showing themselves. His first literary attempts of any moment were dramatic—*Der Student von Nassau* and *Cosmus von Medici*—consigned (doubtless with reason) to the fire. Meanwhile the poet’s general intellectual culture and his professional studies went steadily on; and 1780 he passed as a milit. surgeon, but with no liking for such a career. In 1778 S. completed the first sketch of his memorable drama *Die Räuber* (The Robbers), whose publication 1780

## SCHILLER.

excited violent enthusiasm among the young all over Germany, so wild, and strong, and glowing were the passion and fancy displayed in it. Respectable people, dignitaries, functionaries, and the like, were scandalized; and the duke himself, a 'Serene Highness' sort of man, was induced to lecture the poet on his delinquency, and forbade him to write any more poetry 'without submitting it to *his* inspection.' In 1782 *The Robbers* was brought upon the stage at Mannheim—the poet being present without the knowledge of his superiors, the result of which was arrest for a fortnight. This led to further complications; and finally, in Oct. of the same year, S. fled from the harsh service of the duke into Franconia, and lived a year under a feigned name at Bauerbach, near Meiningen, where he completed his *Fiesco* and *Cabale und Liebe*, begun at Stuttgart. *Don Carlos* also was sketched in outline here. 1783, Sep., he went back to Mannheim, and was for some time closely connected with actors and theatrical life. To this period belong several of his lesser poems. With the *Cabale und Liebe* above mentioned ended the first poetic period in S.'s career, otherwise known as the *Sturm und Drang* period, in which a burning energy of passion and a robust extravagance, passing often into sheer bombast of speech, are predominant characteristics. 1785, Mar., S. left Mannheim, and proceeded to Leipzig, where he became acquainted, among others, with Huber and Körner, and wrote his beautiful *Lied an die Freude*; thence, after a few months, he went to Dresden, where he began the practice of composing during the night, which so fatally assisted in shortening his life. *Der Geisterseher* (The Ghost-seer), a strikingly powerful romance, was written here; and the drama of *Don Carlos* was completed. In 1787 he was invited to Weimar, and was at once warmly received by Herder and Wieland; but some years elapsed before Goethe and he could understand one another; after that, they became the closest friends. Henceforth, S. owed more to Goethe than to all other men: we may even call the later and best writings of S. inspirations of Goethe. The study of the spirit and literature of antiquity in particular exercised a wholesome influence over him, and in his *Götter Griechenlands* (Gods of Greece), which belongs to this stage, we see how calm, and clear, and sunny his once turbid and stormful imagination was gradually becoming. Reinhold of Jena introduced him to the Kantian philosophy, and for a little time S. was in danger of lapsing from a poet into a metaphysician. The philosophical and æsthetic treatises springing out of this new study were collected and published under the title *Kleine prosaische Schriften* (4 vols. Jena 1792–1802). His *Geschichte des Dreissigjährigen Kriegs* (History of the Thirty Years' War) originally appeared in the *Taschenkalender für Damen* (1790–93). On the occasion of the poet's marriage 1790 with Charlotte von Lengefeld, the Duke of Meiningen made him a *Hofrat* (privy councilor); the French republic conferred on him the right of citizenship; and 1802 the emperor raised him to the rank of nobility. While staying for a year with his relatives in

## SCHILLER-SPAR—SCHINKEL.

Würtemberg, he wrote his exquisite *Briefe über ästhetische Erziehung* (Letters on Æsthetic Culture). This period, reaching to the close of 1794, is generally regarded as S.'s *transition* period; in poetic accomplishment it is not rich; but in earnest, thoughtful, and manifold speculation it was highly important to the poet, and we find that it prepared the way for the last and most splendid development of his genius. After 1795, the finest of his lyrics and dramas were produced—as *Der Spaziergang* and the *Lied der Glocke* (Song of the Bell) 1796, *Wallenstein* (1799), *Maria Stuart* (1800), *Die Jungfrau von Orléans* (1801), *Braut von Messina* (Bride of Messina, 1803), and finally his greatest drama, *Wilhelm Tell* (1804). But his health had been long giving way, partly owing to a natural weakness of constitution, and partly to incessant application to study; and he died at the early age of 46. Ever since his death, his fame has been on the increase; he has long been recognized as, next to Goethe, the greatest poet that Germany has produced, and innumerable editions of his works have been published. See *The Life of Friedrich S.* by Carlyle (1825). There are numerous German biographies, the best being Düntzer's *S.'s Leben* (1880).

**SCHILLER-SPAR**, n. *shil'ler-spär* [Ger. *schiller-spath*, *schiller-spar*; *schillern*, to exhibit a play of color]: a mineral, being a hydrated silicate of magnesia, of a grayish-green or yellowish-brown color, and exhibiting a slight play of color.

**SCHILLING**, *shil'ling*, JOHANNES: sculptor: b. Saxony, 1828, June 23. His first work to attract attention was a fine group, *Amor and Psyche*, exhibited 1851. The excellence of his work in Berlin secured him a scholarship for two years in Italy. He then settled at Dresden, and 1868 was appointed prof. in the acad. Among his great works are the Luther monument at Worms; *Four Seasons*; the statue of Schiller at Vienna; the war memorial at Hamburg; and the National Monument which was unveiled by Emperor William 1883.

**SCHINDYLEDIS**, n. *shin'dil-ē'sis* [Gr. *schindūlēsis*, a cleaving into small pieces—from *schizō*, I cleave]: that form of articulation in which a thin plate of bone is received into a cleft or fissure formed by the separation of two laminæ of another bone.

**SCHINKEL**, *shink'el*, KARL FRIEDRICH: German architect and painter: 1781, Mar. 13—1841, Oct. 9; b. Neuruppin, in Brandenburg. He studied at Berlin, and (1803) in Italy. In 1820 he became prof. at the Berlin Acad. of Arts. Other offices and honors were conferred on him. The designs to which chiefly he owes his reputation are those of the Royal Guard-house, the Memorial of the War of Liberation, the New Theatre, the New Potsdam Gate, the Artillery and Engineers' School in Berlin, the Casinos in and near Potsdam, and a great number of castles, country-houses, churches, and public buildings. S. was a man of powerful and original genius.—See Kugler's *Karl Friedrich Schinkel* (Berl. 1842).

## SCHINUS—SCHISMA.

SCHINUS, *ski'nūs*: genus of trees and shrubs of nat. order *Anacardiaceæ*, natives of S. America. The leaves so abound in a resinous or turpentine-like fluid, that on the least swelling of the other portions of the leaf, by moisture, it is discharged from the sacs which contain it. Thus they fill the air with fragrance after rain; or if thrown into water, start and jump about as if alive, discharging jets of this peculiar fluid. The same phenomenon is exhibited by the leaves of some species of the kindred genus *Duvaua*, of which specimens are seen in greenhouses. The leaves and twigs when bruised have strong odor of turpentine.

SCHIRRHOUS, SCHIRRHUS: see SCIRRUS.

SCHISM, n. *sizm* [F. *schisme*—from L. and Gr. *schisma*, a division, a separation—from Gr. *schizō*, I split, I rend]: a division or separation in a church, or among the same sect or religious body. SCHISMATIC, a. *siz-mat'ik*, or SCHISMATICAL, a. *-i-käl*, pertaining to or tending to a schism. SCHISMATIC, n. one who separates, owing to a difference of opinion, from a religious body, especially from an established church. SCHISMATICALLY, ad. *-lī*. SCHISMATICALNESS, n. *-nēs*, the state of being schismatical. SCHISMATIZE, v. *siz'mū-tīz*, to take part in a schism. SCHISMATIZING, imp. SCHISMATIZED, pp. *-tīzd*: see note under DISSENT.—SYN. of ‘schism’: dissent; heresy; heterodoxy.

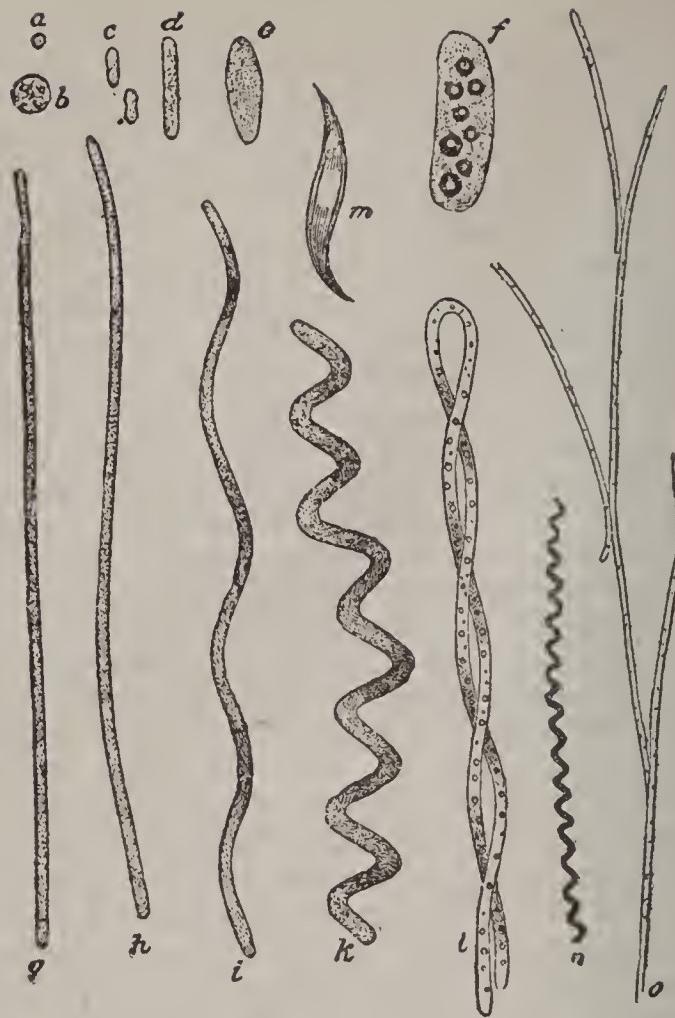
SCHISM, GREEK: the separation between the Greek and Latin churches, which originated in the 9th, and was completed in the 11th c.: see GREEK CHURCH: FILIOQUE.

SCHISM, WESTERN: notable disruption of communion in the Western Church, which arose out of a disputed claim to succession to the papal throne, and lasted nearly 40 years, 1378–1417. On the death of Gregory XI., 1378, a Neapolitan, Bartolomeo Prignano, was chosen pope by the majority of the cardinals in a conclave at Rome, under the name Urban VI. Soon afterward, however, a number of these cardinals withdrew and revoked the election, declaring it to have been not free, because of the violence of the factions in Rome which had overawed the conclave; and, in consequence, they proceeded to choose another pope, under the name Clement VII., who fixed his see at Avignon, while Urban VI. lived at Rome. A rival succession was maintained till the Council of Pisa 1410, in which assembly both were deposed, and a third pope, John XXIII., was elected. This measure not having been acquiesced in by all, a new council was convened at Constance 1417, in which not only the former rivals, but even the new pontiff elected, by consent of the two parties, at Pisa, were set aside, and Otho Colonna was elected, under the name Martin V. In this election the whole body may be said to have acquiesced; but one of the claimants, Peter de Luna, called Benedict XIII., remained obstinate in the assertion of his right till his death 1430.

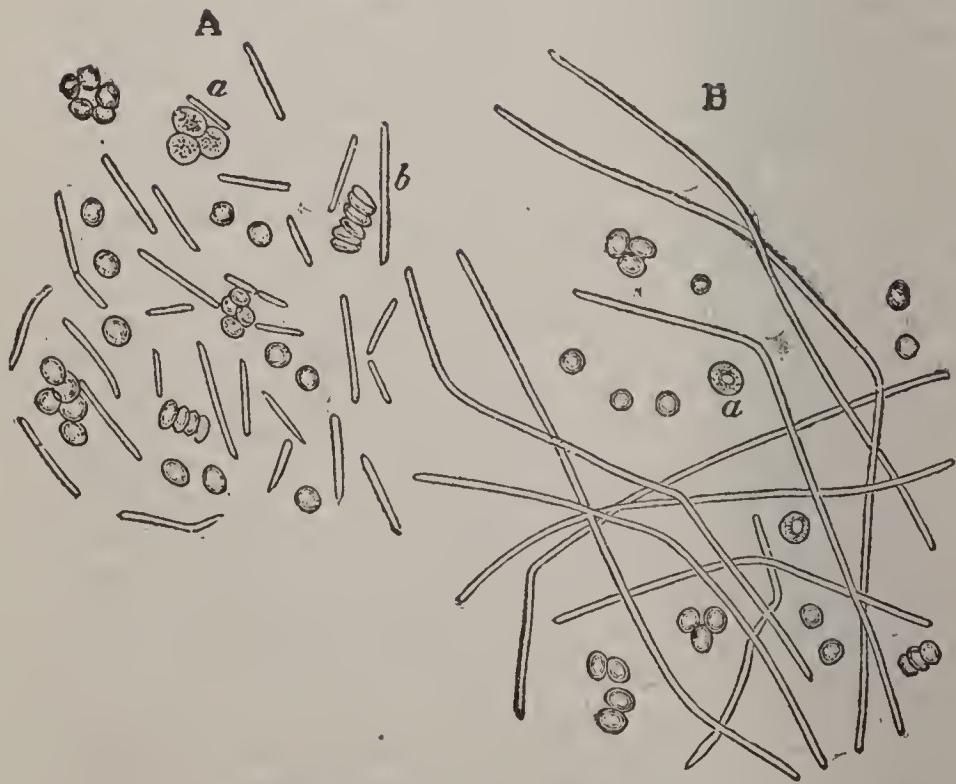
SCHISMA, *skiz'mā*: one of the very small intervals known in the theory of music, which amounts to the difference between the *Comma ditonicum* and *Comma syntonicum*: see COMMA.

# PLATE 1.

Schizomycetes



Typical forms of Schizomycetes.



Bacillus anthracis. (After Koch.)

## SCHIST—SCHLAGINTWEIT-SAKUNLÜNSKI.

SCHIST, n. *shist* [Gr. *schistos*, divisible—from *schizō*, I split; F. *schiste*]: term applied loosely to any varieties of slate or slate-rock which may easily be split; it denotes properly such rocks as mica-schist, gneiss, and the like, of metamorphic strata composed of plates of differing minerals, whose foliated structure splits into thin irregular plates, and not by regular cleavage as do the clay-slate or flagstones. SCHISTIC, a. *shis'tik*, or SCHISTOSE, a. *shis-tōs'*, slaty; having a slaty structure—applied to crystalline, or metamorphic rocks.

SCHIZOCARP, n. *skiz'ō-kārp* [Gr. *schizō*, I cleave; *karpos*, fruit]: in bot., a dry seed-vessel, splitting into two or more one seeded mericarps.

SCHIZOMYCETES, *skiz-ō-mi-sētēz*, otherwise termed SCHIZOPHYTES or PROTOPHYTES [Gr. *schizō*, I cut; *mukēs*, fungus—referring to propagation by self-division]: the lowest division of the vegetable kingdom, characterized by asexual reproduction. As these plants have little in common with fungi proper, the second and third names above given are preferable, the last being more in favor, while the first two refer to a mode of propagation not confined to Protophytes. They are allied to the lowest algae (*Schizophyceæ*) and are mostly microscopic, inhabiting all situations, and including the slime-molds, green sliimes (e.g., *Nostoc*, *Oscillaria*), and the Bacteria and Yeast-plant, to which last two some authors confine the term Schizomycetes. See BACTERIA : BACILLUS.

SCHIZOPH'YTÆ—SCHIZ'OPHYTE: see SCHIZOMYCETES.

SCHIZOPOD, n. *skiz'ō-pōd* [Gr. *schizō*, I split; *pous* or *poda*, a foot]: a crustacean whose legs have each an accessory jointed branch so as to appear double.

SCHLAGINTWEIT-SAKUNLÜNSKI, *shlā'ghin-twīt-sā kün-lün'skī*, HERMANN VON: traveller: 1826, May 13—1882, Jan. 19; b. Munich. In connection with two of his brothers, ADOLF S. (1829, Jan. 9—1857, Aug. 26) and ROBERT S. (1833, Oct. 27—1885, June 6), he travelled extensively and conducted various scientific investigations. The two elder brothers explored the Alps and published (1850) *Untersuchungen über die physikalische Geographie der Alpen*, after which the three made an Alpine exploration and published *Neue Untersuchungen* (1854). During the next four years, under the auspices of the Brit. E. India Company and the king of Prussia, they explored the Himalaya Mountains, Thibet, Hindustan, and Deccan. Their experiences and discoveries are described in *Results of a Scientific Mission to India and High Asia* (5 vols.). Hermann wrote also *Reisen in Indien und Hochasien* (4 vols.) Robert became prof. of geography at Giessen 1864, but spent considerable time in travelling, principally in the United States. He published *Die Pacific Eisenbahn in Nordamerika* (1870), and *Californien, Land und Leute* (1871). Hermann died at Munich, Adolf was killed at Kashgar, and Robert died at Giessen.

## SCHLANGENBAD—SCHLEGEL.

SCHLANGENBAD, *shling'en-bât*: small village and notable spa, in Germany, on the n. frontier of the Rheingau dist., 6 m. w. of Wiesbaden, and about  $4\frac{1}{2}$  m. s. of Schwalbach (q.v.); in a beautiful and secluded situation, embosomed in wooded hills. The water of the baths has a temperature of  $80^{\circ}$  F., and contains the muriates and carbonates of lime, soda, and magnesia, with slight excess of carbonic acid. The baths are resorted to for affections of the skin, and for soothing effect in nervous disorders.

SCHLÄTTER, *shlät'ter*, MICHAEL: clergyman: 1716, July 14—1790, Nov.; b. Switzerland. He studied at the Univ. of Helmstedt, Brunswick: and after teaching in Holland, and preaching for a short time in Switzerland, he came to this country as a missionary to destitute German Reformed congregations. He was settled 1747, Jan. 1, as pastor of the Philadelphia and Germantown Reformed churches, organized a synod, and preached and organized churches in other parts of Penn. and in neighboring states. He went to Europe 1751, and returned the following year with six assistants and a large sum of money for his work; made an unsuccessful attempt to establish schools in which the English language should be taught, was chaplain of the Nova Scotia expedition 1757, sympathized with the colonists in the revolution, and 1777 was imprisoned by the British.

SCHLEGEL, *shlā'ghēl*, AUGUST WILHELM VON: German critic, poet, and translator: 1767, Sep. 8—1845, May 12; b. Hanover. He studied at Göttingen, where he acquired reputation by ardor in philological and classical studies. He began to assume a prominent position in literature, while a lecturer at Jena, contributing assiduously to Schiller's *Horen* and *Musen-Almanach*, and to the *Allgemeine Literaturzeitung*. About the same time, his translation of Shakespeare began to appear (9 vols. Berl. 1797—1810), whose influence on German poetry and the German stage was equally great. Subsequently, the poet Tieck, with S.'s consent, undertook a revision of the work, with translation of such pieces as S. had omitted (12 vols. Berl. 1825, 39, 43); and from their joint labors, the people of Germany are able to form a faithful idea of the surpassing genius of Shakespeare. S. with his brother, Friedrich, edited the *Athenaeum* (3 vols. Berl. 1796—1800), which in spite of, perhaps because of, the severity of its criticism, gave a lively and wholesome impulse to the poetry of its time. He published, besides, his first vol. of poems (*Gedichte*, Tüb. 1800); and, again in company with his brother, the *Charakteristiken und Kritiken* (2 vols. Königsb. 1801). In 1802 S. left Jena for Berlin. In 1803 appeared his *Ion*, an antique tragedy. His *Span. Theater* (2 vols. Berlin 1803—09), consisting of five pieces of Calderon's, admirably translated, has made that poet a favorite with the German people; and his *Blumenstrüsse der Ital. Span., und Portug. Poesie* (Berl. 1804), naturalized in German verse the metrical forms of the Romanic races. Probably his most valuable, certainly his most popular work,

## SCHLEGEL.

was his *Vorlesungen über dramatische Kunst und Literatur* (3 vols. Heidelb. 1809–11), originally delivered at Vienna 1808, transl. into most European languages. 1811–15, S. published a new collection of his poems (*Poetische Werke*), which contains his masterpieces, ‘Arion,’ ‘Pygmalion,’ ‘St. Lucas,’ rich and various in poetic forms, and with singular facility of versification. In 1818, S., now raised into the ranks of the nobility, was appointed prof. of history in the Univ. of Bonn, and applied himself to the history of the fine arts and to philological research. He was one of the first students of Sanskrit in Germany, and established a Sanskrit printing-office at Bonn. His scholarly activity in this department was shown by his ed. of the *Bhagavad Gita*, an episode from the epic poem *Mahábhárata*, with Latin transl. (2d ed. Bonn 1846), and of part of the *Rámáyana* (Bonn 1829–39). S. was not happy in his domestic relations. He was twice married, first to a daughter of Prof. Michaelis of Göttingen, then to a daughter of Prof. Paulus of Heidelberg; but in both cases a separation soon became necessary. S. was jealous, and ungenerous in his relations with literary men, and when excited did not even shrink from slander.

SCHLE'GEL, KARL WILHELM FRIEDRICH VON: historian of literature: 1772, Mar. 10—1829, Jan. 11; b. Hanover; bro. of August Wilhelm von S. He studied at Göttingen and Leipzig, and 1797 published his first work, *Griechen und Römer* (The Greeks and Romans); followed in the course of a year by *Geschichte der Poesie der Griechen und Römer* (History of Greek and Roman Poetry), fragmentary continuation of the former. Both showed rich learning, independent thought, and appreciation of the principles and method of historic criticism; but the chief vehicle at this time for dissemination of his philosophical views of literature was the sharp-fanged periodical *Athenaeum*, edited by himself and his bro. August Wilhelm. Proceeding to Jena, he started there as *privat-docent*, holding lectures on philosophy, with great applause, still editing the *Athenaeum*, contributing poems in most diverse meters. In 1802 appeared *Alarkos*, tragedy, in which the antique-classical and new-romantic elements are singularly blended. He soon went to Dresden, and thence to Paris, where he gave a few more of those philosophical prelections, in the manufacture of which both he and August Wilhelm were unhappily too expert; edited the *Europa*, monthly journal (2 vols. Frankf. 1803–05); and applied himself assiduously to the languages of s. Europe, and still more assiduously to Sanskrit, as is seen in his treatise, *Ueber die Sprache und Weisheit der Indier* (Heidelb. 1808): see PHILOLOGY. During his residence in Paris, he published a *Sammlung Romantischer Dichtungen des Mittelalters* (Collection of Mediæval Romantic Poems, 2 vols. Par. 1804), and the pious chivalric romance of *Lother und Maller* (Berl. 1805). On his return to Germany, he published a vol. of dithyrambic and elegiac poems (*Gedichte*, Berl. 1809). At Cologne, he passed over to the Rom. Cath. Church, a change to which his mediæval studies

## SCHLEICHER—SCHLEIERMACHER.

powerfully contributed, and which affected his future literary career. In 1808, S. went to Vienna, where, 1811, appeared his *Ueber die neuere Geschichte* (Lectures on Modern History), and 1815, his *Geschichte der alten und neuen Literatur* (History of Ancient and Modern Literature). In 1822 a collected ed. of his writings, 12 vols. (*Sämmtliche Werke*), was pub. by himself. Subsequently, he delivered two series of lectures, on the Philosophy of Life (*Philosophie des Lebens*, Vienna 1828), and on the Philosophy of History (*Philosophie der Geschichte*, Vienna 1829), both well known in other countries through translations.

SCHLEICHER, *shlī'cher*, AUGUST: philologist: 1821, Feb. 19—1868, Dec. 6; b. Meiningen, Germany. After studying theology and comparative philology at Leipzig and Tübingen, he graduated from Bonn 1846. Four years later he accepted a professorship at Prague, and 1857 one at Jena. He was remarkably proficient in the Slavo-Lettic languages. He published *Die Sprachen Europas; Compendium der vergleichenden Grammatik der Indogermanischen Sprachen*, which passed through three editions and was translated into English; and other works. He died at Jena.

SCHLEIERMACHER, *shlī'ér-mā'chér*, FRIEDRICH DANIEL ERNST: 1768, Nov. 21—1834, Feb. 12; b. Breslau; son of a chaplain (of the Reformed Church) in the Prussian army: one of the greatest and most influential theologians of modern times. His boyish years were spent in the school kept by the Moravian brotherhood at Niesky, and here first he received those religious impressions which influenced his after-life. In 1787 he proceeded to the Univ. of Halle; and after his academic course, was for some time a teacher; but 1794 became assistant-clergyman at Landsberg-on-the-Warthe, where he remained for two years. He then went to Berlin, and occupied himself partly in translation of some of Blair's and Fawcett's Sermons, and in redaction of the *Athenæum*, conducted by his friend Friedrich Schlegel; but his work that first won celebrity was *Reden über die Religion* (Discourses on Religion, Berl. 1799), which startled Germany from its spiritual torpor, vindicated the eternal necessity of religion, and sought to separate those elements of it that are essentially divine from the incrustations of dogma and the formalities of practice. Neander considered these *Reden* as making the turning-point in his own spiritual career; and they are now regarded as both making and marking an epoch in the theological history of Germany. The *Reden* were followed by the *Monologen*, and the *Briefe eines Predigers ausserhalb Berlin* in 1800. Two years later he was appointed preacher at the Charity-house in the Prussian capital; and during 1804-10 produced his famous transl. of Plato, with commentary, considered in Germany to this day the most profound and penetrating treatise on the Platonic philosophy, though English scholars incline to regard its criticism as too subjective, and in important re-

## SCHLESWIG.

spects baseless. In 1801 appeared the first collection of his *Predigten* (Sermons), followed 1808-33 by six other collections. They are masterpieces of penetrating and eloquent discussion, appealing equally to the heart and the intellect of hearers and readers. In 1802 S. went as court-preacher to Stolpe, where he published *Grundlinien einer Kritik der bisherigen Sittenlehre*; and 1804 was called to Halle as univ.-preacher and prof. of theol. and philos. In 1807 he returned to Berlin. Among his next publications are *Ueber den sogenannten ersten Brief des Paulus an den Timotheus* (Concerning the So-called First Epistle of Paul to Timothy, Berl. 1807). In 1809 he became pastor of Trinity Church, Berlin; and 1810, when the Univ. of Berlin was reopened, with a brilliant array of professors, under the rectorship of Fichte, no name was more conspicuous than his. In 1811 he was chosen a member of the Berlin Acad. of Sciences, in whose Transactions are valuable papers by S. on the ancient philosophy; and 1814 sec. of the philosophical section. In 1817 he was appointed pres. of the synod assembled in Berlin. His latest and perhaps his most important work is *Der Christliche Glaube nach den Grundsätzen der Evang. Kirche im Zusammenhang dargestellt* ('The Christian Faith Systematically presented according to the Fundamental Propositions of the Evangelical Church, 2 vols. Berl. 1821-2), in which his deepest and most Christian thought is visible. He died at Berlin. The list of S.'s disciples—i.e., of men who have derived the groundwork of their principles from him—is one of the most splendid that any theological reformer could show, comprising, with many others, Neander, Nitzsch, Twesten, Olshausen, Lucke, Bleek, Ullmann. In 1864 appeared a posthumous work of S., *Das Leben Jesu, Vorlesungen an der Universität zu Berlin im Jahr 1832*, in which he conceives of the Lord Jesus as a man in whom the Spirit of God works as perfectly as is possible in humanity, and treats his history accordingly. Strauss has replied in a critique (Berl. and Lond. 1865). S.'s theology on several points does not square itself with the traditional 'orthodoxy' of Britain and the United States; but he was a great, earnest, devout, spiritual, evangelical Christian man, of massive understanding, and whose eloquence was scarcely less golden than that of Plato himself. Germany overflows with literature on S., his system, and his ideas.—Among the more important works on S. are Dilthey's *Leben S.'s* (I. 1870); *Aus Schleiermacher's Leben in Briefen* (1858, Eng. transl. 1860); Bender, *S.'s Theologie* (1878); Lang, *Religiöse Charactere* (1862).

SCHLESWIG, *shlēs'vich*: duchy, formerly part of Denmark: see SLESVIG: DENMARK: SCHLESWIG-HOLSTEIN.

## SCHLESWIG—SCHLETTSTADT.

SCHLESWIG (Dan. SLESVIG): city, cap. of the Prussian province of Schleswig-Holstein; on the w. end of the Schlei, a long, narrow arm of the sea; lat.  $54^{\circ} 31' 11''$  n., long.  $9^{\circ} 34' 45''$  e. It consists mainly of a single street of semicircular form and  $3\frac{1}{2}$  m. long, around the head of the Schlei. It is of little commercial importance, the Schlei being unnavigable except for vessels of light draught; it has few manufactures. The principal church, built about 1100, renewed in the 15th c., has a fine carved altar-screen. S. was as early as the 9th c. a great mart for exchange of goods between the countries of the North Sea and those of the Baltic. About the middle of the 10th c. it became a bishop's see and the residence of the dukes of SLESVIG (q.v.).—Pop. (1890) 15,123; (1895) 17,255.

SCHLESWIG-HOLSTEIN, -*hōl'stīn*: Prussian prov., bounded n. by Denmark, w. by the North Sea, s. by the Elbe and Mecklenburg, e. by Mecklenburg, Lübeck, and the Baltic; 7,280 sq. m. For the history of the two duchies comprised in S.-H., see SLESVIG: DENMARK: GERMANY—*North German Confederation*: HOLSTEIN. On the Baltic side the coast consists of a continuous range of wooded hills, presenting the most productive soil in the province. The central plain has thin, sandy soil. Along the w. coast is a belt of rich alluvium 5–15 m. wide, only a few ft. above sea-level, and in many places even below it: there the sea is kept out by dikes. The Baltic coast is diversified and indented by numerous fiords which afford safe harbors: the North Sea coast-line is broken only by the estuary of the Eider and the Eiderstedt peninsula. The climate on the whole is healthful, and the mean annual temperature ( $45^{\circ}$  F.— $49^{\circ}$  F.) higher than in inland countries of the same latitudes. The agricultural products are: cereals, of which there is considerable surplus exported; rape and flax; apples and other fruits, largely for export. There were (1883) 156,534 horses, 727,505 head of cattle, 320,768 sheep, 268,061 swine, 42,580 goats, 113,836 hives of bees. The fisheries are an important source of wealth. The mineral resources are inconsiderable, as is also the manufacturing industry, except shipbuilding, which at Kiel has attained high importance. The shipping of S.-H. (1884) comprised 142 steamers and 571 sail-vessels, tonnage 115,600 tons. S.-H. has 10 representatives in the Reichstag, and 19 in the Prussian Abgeordnetenhaus or chamber of deputies.—Pop. (1890) 1,219,523, of which 21,794 were Rom. Catholics, 3,571 Jews; (1900) 1,387,777.

SCHLETTSTADT, *shlēt'stāt* (French *Schlestadt*): town of Lower Alsace, on the left bank of the Ill, 26 m. s.w. of Strasburg. Till the war of 1870–1, S. was a French fortress of the third class. It was bombarded and compelled to capitulate to the Germans 1870, Oct. 24. The fortifications have been demolished.—Pop. (1875) 9,094; (1880) 8,979; (1890) 9,418; (1895) 9,304.

## SCHLEY—SCHLIEMANN.

**SCHLEY**, *shlē*, WINFIELD SCOTT: naval officer: b. Frederick co., Md., 1839, Oct. 9. He graduated from the U. S. Naval Acad. 1860, was in many engagements in the civil war, was instructor at the acad. 1866-69, and after serving on the Asiatic station returned to the acad. He was connected with the Brazil station 1876-79, and 1884 was in command of the expedition which brought Lieut. Greely and six others from Grinnell Land. He was promoted commander 1874, became chief of the navy equipment and recruiting bureau 1885, and capt. 1888. With J. R. Soley he published *The Rescue of Greely* (1886). In 1898 he was promoted commodore and put in command of the Flying Squadron on duty in Cuban waters; blockaded Cervera's fleet in Santiago harbor, and his squadron united with that of Adm. Sampson—was in immediate command at the destruction of that fleet July 3. He was promoted rear-admiral 1898, Aug., and retired 1901, Oct. 9. A controversy having arisen between his friends and those of Admiral Sampson as to whom the credit of the victory belonged, and his bravery having been impugned, he requested an inquiry into his conduct. The majority report found him guilty of vacillation, lack of enterprise and disobedience, but Admiral Dewey, one of the court, upheld him. In 1902, Jan., he appealed from the verdict to President Roosevelt, but the latter confirmed the approval of the Secretary of the Navy, and censured Admiral Schley.

**SCHLIEMANN**, *shlé'mán*, HEINRICH: Hellenic archeologist and explorer: 1822, Jan. 6—1890, Dec. 27; b. Neu-Buckow, Mecklenburg-Schwerin. He attended the Realschule of Neu-Strelitz 1834-36, and then was apprenticed to a retail grocer in Fürstenberg, in whose service he remained five years, when he was by an accident disabled for physical labor. He then went to Hamburg and took ship to St. Petersburg 1846 as representative of the firm of Schroeder & Co., of Amsterdam. In St. Petersburg he embarked also in business on his own account. Meanwhile he added modern and ancient Greek to his linguistic acquisitions. He had accumulated \$20,000 by 1849, and then went to California, taking about half his capital. At Sacramento he bought gold of the miners, and sent it to San Francisco for sale; later he opened a bank. By the admission of California as a state of the Union, S. became a citizen of the United States. He returned to St. Petersburg 1853 with his capital more than doubled. He made the circuit of the globe 1864-66; visited the sites of ancient Greek towns.

Having obtained a permit from the sultan, he began excavations on Mt. Hissarlik in the Troad 1870: see TROY. He unearthed the acropolis of ancient Mycenæ (q.v.) 1876 discovering the royal sepulchres believed in the time of Pausanias to contain the remains of Agamemnon and his companions, slain by Ægisthus and Clytemnestra: the objects found in these tombs were crowns, necklaces, rings, etc., of pure gold, weighing 100 lbs. or more. He uncovered the 'treasury' of Orchomenus (q.v.), and en-

## SCHLOSSER—SCHMALKALD.

riched science by the discovery of a highly artistic sculptured ceiling dating from prehistoric times. At the site of Tiryns (q.v.), he discovered the great prehistoric palace of the kings of Tiryns, 1884–5. His published works, all (or nearly all) of which have been translated into English, are: *La Chine et Le Japon* (1866); *Ithaka, der Peloponnes und Troja* (1869); *Trojanische Alterthümer* (1874); *Mykenä* (1878); *Ilios* (1881); *Orchomenos* (1881); *Reise in der Troas* (1881); *Troja* (1883); *Tiryns* (1886). S. had a charming residence at Athens from 1871 to his death.

**SCHLOSSER**, *shlōs'er*, FRIEDRICH CHRISTOPH: German historian: 1776, Nov. 17—1861, Sep. 23; b. Jever. He was educated at Göttingen; was long a private tutor and academic teacher, and 1817 was called to Heidelberg as prof. of history. His principal writings (in the order of time) are: *Abélard und Dulcin* (Gotha 1807); *Leben Beza's und des Peter Martyr Vermili* (Heidelb. 1809); *Geschichte der Bilderstürmenden Kaiser des Oeström. Reichs* (Frankf. 1812); *Weltgeschichte in Zusammenhängender Erzählung* (Frankf. 1817–24); *Geschichte des 18. Jahrh.* (Heidelb. 1823); *Universalhistorische Uebersicht der Geschichte der Alten Welt und ihrer Cultur* (Frankf. 1826–34); *Weltgeschichte für das Deutsche Volk* (1844–53); and *Studien über Dante* (1856). Of these works, most notable are *Geschichte des 18. Jahrh.*, continued by S. in the later editions till the fall of Napoleon; and *Weltgeschichte für das Deutsche Volk*; both transl. into English and other tongues. A keen, critical, and powerful writer, S. judges men and events by a stern ethical standard. See Life by Weber (1876).

**SCHMALKALD**, *shmál'kält*, LEAGUE OF: defensive alliance concluded provisionally for nine years at Schmalkalden (q.v.), 1531, Feb. 27, between nine Prot. princes and eleven imperial cities, with which other five princes and ten imperial cities subsequently made common cause: the Elector of Saxony and the Landgrave of Hesse being appointed chiefs of the league, empowered to manage its affairs. The object of this formidable alliance, which included the whole of n. Germany, Denmark, Saxony, and Württemberg, and portions of Bavaria and Switzerland, was the common defense of the religion and political freedom of the Protestants against Emperor Charles V. and the Rom. Cath. states. The league was not rendered superfluous by the religious peace of Nürnberg 1532; and on the rumor that the emperor was meditating new hostile measures against the Protestants, another meeting of the confederates 1535, Dec. 24, resolved to raise a permanent army of 10,000 foot and 2,000 cavalry, and to prolong the league ten years. The confederation was further consolidated by articles of guarantee drawn up by Luther at Wittenberg 1536, and being subscribed by the theologians present at the meeting of the league at Schmalkalden 1537, Feb., were called *Articles of Schmalkald*. Against the league, the emperor, engaged in contests with the Turks and French, found himself unable to contend, though supported by the Holy League, a Rom.

## SCHMALKALDEN—SCHMITZ.

Cath. confederation formed 1538, in opposition to the Prot. one. But impolitic management, mutual jealousies, and conflicting petty interests, dissipated the Prot. energies, and prevented united action. The 'War of Schmalkald, commenced by the advance of the army of the league under Sebastian Schärtlin into Swabia, to bar the approach of the imperial army from Italy. Schärtlin forced his way to the banks of the Danube, but the miserable jealousy of the Saxon princes paralyzed his action. The emperor, by proclamation 1546, July 20, put the two chiefs of the league under the ban of the empire; Maurice, Duke of Saxony, took possession of the electorate, by virtue of an imperial decree; and the Prot. army was forced to retreat. The Elector of Saxony reconquered his electorate in the autumn of 1546, but meantime the imperial army subdued the northern members of the League of S., and advanced into Franconia to meet the combined armies of Saxony and Hesse, which were totally routed at Mühlberg (1547, April 24), and both chiefs fell into the emperor's hands. This defeat, ascribed to treason, finished the war. The object of the league, the guarantee of the liberty of religion to the Protestants, was subsequently effected by Maurice, now Elector of Saxony, who, by a brilliant feat of diplomacy and generalship, compelled the emperor to grant the treaty of Passau (1552, July 31), by which this freedom was secured.

**SCHMALKALDEN**, *shmál'kál-dén*: old and interesting town of Hessen-Nassau, Prussia, at confluence of the Stille and Schmalkald, 11 m. n. of Meiningen. It is surrounded with double walls, contains two castles, and carries on considerable mining operations, especially in iron, and various manufactures, the chief of which are hardwares. Pop. (1880) 6,452 ; (1890) 7,318.

**SCHMIDT**, *shmít*, HENRY IMMANUEL, D.D.: 1806, Dec. 21—1889, Feb. 11; b. Nazareth, Penn. He graduated from the Moravian Theol. Seminary at Nazareth; taught for three years; became a Lutheran clergyman, and 1831 was settled in Bergen co., N. J. He was afterward pastor at Boston; prof. for a year in the Luth. College at Gettysburg, Penn., and 1839-43 in the theol. seminary at that place; preached at Palatine, N. J., two years, and was principal of the Luth. Seminary at Hartwick, N. Y., 1845-48. In the latter year he became prof. of German language and literature in Columbia College. He held this position till 1880, when ill health caused his resignation, and he became prof. emeritus. He wrote many theological articles and several books. Among the latter were a *History of Education* (1842), and a *Course of Ancient Geography* (1860).

**SCHMITZ**, *shmits*, LEONHARD, PH.D., LL.D.: author and educator: 1807, Mar. 6—1890, May 28; b. Germany. He studied at Bonn 1828-32, giving special attention to history and philology, taught in the gymnasium of Bonn, and 1836 removed to England. He gave several years to authorship, was rector of the Edinburgh High School 1845-66, and in the latter year became principal of the London

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International College, which position he held till 1874, when he became classical examiner in the Univ. of London. He was tutor to the Prince of Wales and Prince Alfred, edited various works, contributed to cyclopedias, and published numerous educational works, including Latin, Greek, and German grammars; a *History of Latin Literature*; and a *Manual of Ancient History*, which passed through 13 editions. For his 'services to classical education and literature' the British govt. granted him a pension 1881.

**SCHMUCKER**, *shmük'er*, SAMUEL SIMON, D.D.: 1799, Feb. 28—1873, July 26; b. Hagerstown, Md.; son of the Rev. J. G. S., D.D. He graduated from the Univ. of Pennsylvania 1817, and from the theol. seminary at Princeton 1820; was settled at New Market, Va., 1820-26; was prof. in the Evangelical Luth. Theol. Seminary at Gettysburg, of which he was one of the founders, and chairman of its faculty 1826-64; was prominent in the organization of the Luth. general synod; and by his writings prepared the way for the formation of the Evangelical Alliance, to whose first meeting, London 1846, he was a delegate. More than 400 men were fitted for the ministry under his care; he draughted the formula for the govt. of the Evangelical Lutheran Church, and published about 100 sermons, addresses, and books. Among the latter were: *Elements of Popular Theology*, of which 9 editions were sold; *Psychology, or Elements of a New System of Mental Philosophy* (1842); *Lutheran Manual* (1855); and *The True Unity of Christ's Church* (1870). He died at Gettysburg, Penn.

**SCHNAPPS**, or **SCHNAPS**, n. *shnäps* [Ger. *schnapps*, a dram]: dram of Holland gin or other ardent spirits.

**SCHNEEBERG**, *shnā'bērgh*: pleasantly-built and important mining town of Saxony, surrounded by mountains, 20 m. s.w. of Chemnitz. The principal products of the mines are silver (though not in its former great abundance), cobalt, bismuth and nickel, iron, etc. Cloth, shoes, and cigars are manufactured. Pop. (1880) 7,642; (1890) 8,213.

**SCHNEEKOPPE**, *shnā'kop-pā*: culminating point of the mountain chain of the Riesengebirge: see BOHEMIA.

**SCHNEIDER**, *shnī'dér*, HORTENSE CATHERINE: actress; b. Bordeaux, France, about 1835. Against the wishes of her parents, she appeared, when 15 years of age, at a theatre in Bordeaux. She studied singing, played minor parts at Agen for three years, and then appeared at the Théâtre des Bouffes in Paris. She afterward played at other theatres in Paris, became one of the most famous actresses of the time, and secured an immense fortune. Her greatest success was in *La Grande Duchesse de Gérolstein* at Paris 1867, and London 1868. She married 1881 an Italian count, and retired from the stage, but soon separated from her husband, and has since lived just outside of Paris.

## SCHNEIDER—SCHOELCHER.

SCHNEIDER, JOHANN GOTTLÖB: philologist: 1750, Jan. 18—1822, Jan. 12; b. Saxony. He studied at Leipzig and Göttingen, assisted Brunck in preparing an edition of the Greek poets, was prof. of anc. languages in the Frankfurt Univ. 1776–1811, and held the same position from the removal of the institution to Breslau in the latter year till 1816, when he resigned to become its librarian. He published valuable editions of several classical works, including *Xenophontis Opera* (6 vols.), and *Theophrasti Opera* (5 vols.); and a *Griechisch-Deutsches Wörterbuch* (2 vols.), which passed through three editions, to the last of which he added a supplement.

SCHNIT'ZER, EDWARD: see EMIN PACHA.

SCHNORR VON KAROLSFELD, *shnor fōn kā'rōlss-fēlt*, JULIUS: German painter: 1794–1872; b. Leipzig; bro. of Louis S. von K., noted artist. After a year of study at Vienna, he with others revolted from the dominant Acad. methods and style. Among his first noted pictures were *Wrestling of Christian Cavaliers with Pagans, from Ariosto*, and *St. Roch Distributing Alms*. From 1817, he spent a year in Florence, and six years in Rome, painting in fresco the villa Massimi, and producing many Scripture subjects on canvas. Called 1827 to the chair of hist. painting in the Munich Acad., he executed illustrations of the Nibelungen in 5 great halls of the new palace, and many similar works, such as a frieze of subjects from Homer. In 1846 he became director of the Acad. gallery, and prof. at Dresden. There he finished his *Bible in Pictures*, 240 plates, with preface and text (Leipzig 1852–60); also painted *Luther at the Diet of Worms*, and designs for windows of St. Paul's, London, e.g., *St. Paul on the Damascus Road*. It is said that he alone of the Munich fresco-painters combined happily the ideal and the real.

SCHOEFFER, *shöf'fér* (or SCHOIFFER), PETER: printer: about 1430–1503; b. Gernsheim, Germany. After serving as a copyist at Paris, he secured, when about 20 years of age, employment at Mentz, in the printing establishment of Gutenberg and Faust. He made various important improvements in the details of printing, and soon after his employers separated, 1455, he entered into partnership with Faust, whose daughter he afterward married. The books printed by the firm were noted for excellence of type and press-work. After the death of Faust, S. conducted the business alone. A monument in his honor was erected 1836 in his native town. His son, Johann S., succeeded him in the printing business.

SCHOELCHER, *shäl-shär'*, VICTOR: French publicist: 1804, July 21—1893, Dec. 26; b. Paris. He was educated in the Coll. of Louis the Grand, inherited a fortune, and gave himself to fine-art criticism until 1822; when, with a passion for liberty and justice, he joined liberal societies to bring about the downfall of the govt. of Charles X. Visiting America and the Antilles 1829, he was profoundly indignant at the condition of the slaves, and began his long work to effect emancipation in the French colonies and

## SCHOFIELD—SCHOLAR.

elsewhere. Returning 1830, he founded the *Revue Républicaine*, the *Revue Indépendante*, the *Journal du Peuple*, and *Réforme*, himself writing chiefly against slavery. Afterward he visited Egypt, Greece, Turkey, and Africa, with special reference to problems of servitude. Under the republic held office, was prominent in legislation, voted with the extreme left, prepared the decree of abolition of slavery, inspired the suppression of the lash in the navy, and opposed capital punishment. Forced to surrender himself on the barricades 1851, Dec. 2, he was exiled, refused Louis Napoleon's amnesty, returned to Paris 1870, as col., organized troops during the siege, and, after the capitulation, became active in the assembly. For his numerous works relating to reforms and political events, see *Larousse's Dic. Univ.* Able, earnest, and generous, he made munificent gifts to libraries and museums in Paris and in Martinique and Guadeloupe.

**SCHOFIELD**, *skō'fēld*, JOHN McALLISTER: milit. officer: b. Chautauqua co., N. Y., 1831, Sep. 29. He graduated at the U. S. Milit. Acad., and was brevetted 2d lieut. 2d U. S. artil. 1853, and in the regular army was promoted 2d lieut. 1st U. S. artil. the same year; 1st lieut. 1855, capt. 1861, brig. gen. 1864, brevet maj. gen. 1865 for services at Franklin, Tenn., and maj. gen. 1869, and on the death of Gen. Philip H. Sheridan (q.v.), 1888, became maj. gen. commanding the U. S. army. In the vol. army he was appointed maj. 1st Mo. inf. 1861, was promoted brig. gen. the same year, and maj. gen. 1862, and was mustered out of the vol. service 1865. He was principal asst. prof. of natural and experimental philosophy at the U. S. Milit. Acad. 1856-60; supt. of the acad. 1876-81; commander of the dist. and dept. of Mo. 1862-64, the Army of the Ohio, the 23d corps in the Ga. campaign, the forces that defeated the Confederates under Hood at Franklin 1864, Nov. 30, and at Nashville soon afterward, the dept. of N. C. 1865, Feb.—June, and the 1st dist. of Va. 1866-7. He executed the terms of the convention for the surrender of Gen. Johnston's army 1865; was sec. of war *ad interim* 1868, May—1869, Mar.; and became commander of the dept. of Mo. 1869, the div. of the Pacific 1870, the new milit. div. of the Pacific 1882-3, the div. of the Mo. 1883, and the div. of the Atlantic 1886. He was pres. of the new tactics board 1870, and of the Fitz John Porter (q.v.) inquiry board 1878; was pres. of the Milit. Service Institution three times; 1895 he was made lieut.-gen. and Sept. 29 was retired.

**SCHOLAR**, n. *skōl'ēr* [L. *schola*; Gr. *scholē*, employment of leisure, philosophy, a school: Dut. *scholier*; Ger. *schüler*, a pupil: Ger. *schule*, a school]: one who learns of a teacher; one who has attained a certain advanced proficiency, as in learning; a pupil; a student; a man eminent for learning; an undergraduate partly supported from the revenues of his college. **SCHOL'ARLY**, a. *-lē*, resembling or becoming a scholar. **SCHOL'ARSHIP**, n. learning; knowledge; erudition; the character and qualities of a scholar; a foundation for the support of a student.—**SYN.** of 'scholar': pupil; learner; disciple; savant; academician.

## SCHOLARSHIP—SCHOLASTICS.

**SCHOLARSHIP:** benefaction, generally the annual proceeds of a bequest permanently invested, paid for maintenance of a student at a university or college. In the English universities of Oxford and Cambridge and their colleges are numerous scholarships in value from £20 to £100 per annum. In both universities, the scholars are chosen from the undergraduates, and are often elected before they have begun their attendance at the univ. They are on the foundation, but their connection with the college is not so intimate as that of the fellows. The regulations and the advantages differ in the different colleges. A number of the scholarships which were formerly restricted have recently been thrown open to public competition. The Bursaries (q.v.) of the Scottish universities are nearly analogous to the Scholarships of the English.

In the United States, scholarships have been a favorite form of benefaction, on the part of wealthy givers and testators, even to the extent of embarrassing many colleges that need the gifts much more for a general endowment to meet innumerable expenses. In some instances a donation for building, even, has been coupled with the condition that tuition fees shall be remitted to the amount of the interest on the donation. It has been asserted that in this country every student worth educating can better make his own way. Still, a certain proportion of free scholarships are undeniably helpful to many earnest students—a proportion in regard to which the benevolent might well confer with the college authorities. Scholarship funds usually range from \$500 to \$1,000, though in many cases larger.

**SCHOLASTIC**, a. *skō-lüs'tik*, or **SCHOLASTICAL**, a. *-tik'käl* [L. *scholas'ticus*, of or belonging to a school, a lecturer in the schools, a rhetorician—from *schola*, a school (see SCHOOL)]: of or pertaining to a scholar, or to a school; pertaining to the schoolmen; pedantic. **SCHOLASTICALLY**, ad. *-li*. **SCHOLASTIC**, n. one who adheres to the methods and subtleties of the schools. **SCHOLASTICISM**, n. *-ti-sizm*, the methods or subtleties of the schools of philosophy of the middle ages; scholastic philosophy or formality. **SCHOLASTIC PHILOSOPHY**, that system of philosophy which arose in the schools and universities of the dark or middle ages.

**SCHOLASTICS**, or **SCHOOL'MEN**: originally the teachers of rhetoric at the public schools under the Roman empire; now denoting almost exclusively the so-called philosophers of the middle ages. After the fall of the old classic civilization, there ensued a long anarchy of barbarism, from the 6th to the 8th c.; but from the time of Charlemagne a visible improvement took place. That great monarch encouraged learning; and the monasteries as well as the schools which he established became subsequently the seats of a revived culture of philosophy. Conformably, however, to the spirit of a time in which learning and literary skill were confined to churchmen, philosophical activity showed itself chiefly in the domain of theology. This preparatory period of scholasticism (9th–11th c.) embraces the distinguished names of Johannes Erigena Scotus (see ERIGENA), who cannot, however, be properly classed among the Scholastics;

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Gerbert of Aurillac, afterward Pope Sylvester II. (q.v.); Berengarius (q.v.) of Tours; and Lanfranc (q.v.), Abp. of Canterbury. A further development of scholasticism occurred toward the middle of the 12th c., when Roscellinus (see ROSCELIN; NOMINALISM) opened the question concerning the nature of universal conceptions, which led to the great struggle between the *Nominalists* (q.v.) and *Realists* (q.v.). This struggle terminated in the triumph of the latter; and henceforth, during the golden age of scholasticism (the 12th and 13th c.), realism continued the prevalent mode in philosophy. Still, however, scholasticism regarded philosophy as dependent on theology. No one doubted or at least disputed the truth of any of the church doctrines. These were alike too sacred and too certain to be so handled; and the only thing left for a humble philosopher to do was, in fact, to sort and systematize them: hence the expression *philosophia theologiae ancilla* (philosophy is the handmaiden of theology), which has found its way down to modern times. Whatever did not directly belong to ecclesiastical dogma was either neglected or treated in accordance with the vague traditions of Platonic or Aristotelian thought handed down from antiquity. Hence sprang that vast array of artificial subtleties and distinctions which had no better foundation than gross ignorance of the matters discussed, combined with restless speculativeness. The formulas of logic were abused through an irrational realism, which regarded them not only as a means to the attainment of philosophical knowledge, but as the material organon of philosophy itself. At first, the dialectic treatment of dogma was only fragmentary, as we see it in the principal Scholastics of the 12th c., Gilbert de la Porrée, Alanus ab Insulis, and Petrus Lombardus (q.v.). During the 12th c., however, the increased intercourse of the West with the Arabs and Greeks led to more definite acquaintance with the physical and metaphysical writings of Aristotle, though still only through the medium of incomplete translations, and in this way the circle of vision of the Scholastics at least widened, if it did not become clearer. From this period dates the almost *papal* authority of the great Stagyrite in philosophy, and the rise of the vast and elaborate systems of mediæval theology. The three chiefs of scholasticism in this, its highest development, were Albertus Magnus (q.v.), Thomas Aquinas (q.v.), and Duns Scotus (q.v.); around each of whom stand groups of more or less independent scholars and followers. The celebrity of such teachers was largely increased by the lack of books, which compelled their pupils to rely on their oral communications, and necessitated those extraordinary public disputations which were the only means 'philosophers' had of advertising their wares in the middle ages. The honor paid to them by their admirers is visible in the epithets attached to their names; thus, Alanus is the *Doctor universalis*; Alexander Hales (q.v.), the *Doctor irrefragabilis*; Duns Scotus, the *Doctor subtilissimus*; Thomas Aquinas, the *Doctor angelicus*; Guillaume Durand of St. Pourcain, the *Doctor resolutissimus*, etc.

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With Thomas Aquinas and Duns Scotus, scholasticism culminated. After their time, various causes co-operated to bring its decline and fall. The mystical theology (see MYSTICISM) gradually developed its natural antagonism to speculations resting on a basis of formal logic, and not appealing to the human heart and spirit. Such men as St. Bernard (q.v.) of Clairvaux, and the monks of St. Victor at Paris, in the 12th c.; with Bonaventura, in the 13th, were unconsciously hostile to the dominant style of thought; while in the 14th and 15th c., Tauler, Thomas à Kempis, Gerson, Nicholas of Clelangis, and others—deliberately set themselves against it. The very nature of the scholastic thought was inimical to its own perpetuity. The hyperlogical, hair-splitting course which it followed produced rival systems, and results discordant with the doctrines of that theology which it undertook to support; until it finally laid down the astounding proposition that a thing might be philosophically true and theologically false, and *vice versa*. The quarrels of the two great orders—the Dominicans and the Franciscans—each of which took part with its metaphysical chief; the former being called Thomists (from Aquinas), and the latter, Scotists (from Duns Scotus), materially injured the common cause of scholasticism; and the revival of Nominalism under William of Occam (q.v.), its most distinguished advocate, powerfully contributed to the same result; but it was not till after the revival of letters had done its work of enlightening the judgment and purifying the taste of Europe, that scholasticism was visibly in danger. The Reformation shook the system to its foundations—Luther himself leading the assault with the strength and valor of a Cœur-de-Lion; but still, so tenaciously did it cling to the semblance of life, that in the universities it held its footing till the 17th c., and even later. In fact, in some Rom. Cath. states, e.g., Spain, it is still almost the only philosophic mode. The two great intellectual reformers whose writings mark the transition from the mediæval to the modern mode of thought, are Lord Bacon (q.v.) and Descartes (q.v.), who may be said to have administered the death-blow to scholasticism. The literature of this phase of speculation is enormous, and few critics have ventured far into its cob-webbed regions. For instance, the printed writings of Albertus Magnus, Thomas Aquinas, and Duns Scotus, amount to 51 folio vols.; but however glad we may be that the reign of scholasticism is over, and however thankful to men like Laurentius Valla, Erasmus, Rudolf Agricola, and Ramus, who riddled its ancient and time-honored flag with the sharp shot of their wit and logic, we ought never to forget, that in ages when the conditions of scientific knowledge or refined taste did not exist, these old monkish dialecticians kept alive the philosophical faculty in Europe by the vivacity and restless ingenuity with which they prosecuted their fantastic speculations.

## SCHOLIAST—SCHOMBURGK.

**SCHOLIAST**, n. *skō'lī-ăst* [Gr. *scholastēs*, a writer of explanatory notes; *scholion*, a short note, a comment; *scholē*, leisure, philosophy]; a commentator or annotator. **SCHO-LIAS'TIC**, a. *-ăs'tik*, pertaining to a scholiast, or to his pursuits. **SCHO'LIUM**, a. *-ūm* plu. **SCHO'LIA**, *-lī-ă*, or **SCHO'LIUMS**, *-ūmz*, an explanatory note or criticism written on the margin of a MS. by one of the anc. critics; an explanatory remark appended as a footnote to the demonstration of a proposition, or to a train of reasoning.

**SCHOLTEN**, *skol'ten*, JOHANNES HENDRIK: theologian: 1811, Aug. 17—1885; b. Vleuten, Netherlands. He graduated with high honors from the Univ. of Utrecht, was pastor at Meerkerk 1838–40, prof. of theol. at Franeker 1840–43, and in the latter year took a similar professorship at the Univ. of Leyden. He founded the rationalistic school of Dutch theology, and exerted a powerful influence on the religious thought of Europe. He was several times elected rector of the univ. His official connection with the institution closed 1881. Among his numerous works were *Doctrine of the Reformed Church*, 2 vols. (1848–50); *The Gospel of John* (1864); and *The Pauline Gospel* (1878).

**SCHÖMBERG**, *shom'bérch*, FREDERICK ARMAND, Duke of: soldier: about 1619–1690, July 1; b. Heidelberg, Germany; son of Count S. He served in the Swedish army during part of the Thirty Years' War, for which his estate was confiscated by the emperor; served under Frederick Henry, Prince of Orange, till the death of the latter; entered the French army, and was promoted till he reached the rank of marshal. For his aid to the Portuguese in their conflict with Spain he was awarded 1668 a pension of £5,000 a year. On account of the revocation of the edict of Nantes, 1685, he was obliged to leave France. After spending some time in Portugal and Holland, he went with the prince of Orange, 1688, as second in command of the army in the expedition to England; was created a baron, marquis, and duke; was knighted and given £100,000 by the house of commons 1689; and the same year was in command of the army sent against James II. in Ireland. Of his action in this campaign widely differing views are held. He was killed at the battle of the Boyne. Dean Swift wrote a Latin inscription for the monument erected to him in St. Patrick's Cathedral, Dublin.

**SCHOMBURGK**, *shom'bérk*, Ger. *shom'bürk*, Sir ROBERT HERMANN: traveller: 1804, June 5—1865; b. Freiburg in Prussian Saxony. In early life he was for a short time resident in Va.; but having interested himself in geog. and nat. history, he was sent to survey Guiana (see *Journal*, Royal Geog. Soc.; *Travels and Researches in Brit. Guiana* in 1835–39—London, 1840). In this survey he discovered the aquatic plant *Victoria Regia* (q.v.). His *Description of British Guiana* was the fruit of his second expedition commissioned by the Brit. govt. for boundary survey, etc.; for which he received knighthood. In 1847 he pub. *History of Barbadoes*; and 1857–64 was Brit. representative to the Siamese court.

## SCHÖNBEIN—SCHOOL.

SCHÖNBEIN, *shön'bīn*, CHRISTIAN FRIEDRICH, German chemist : 1799, Oct. 18—1868 ; b. Mitzingen in Würtemberg. He studied natural science at Tübingen and Erlangen, and afterward in England 1826, and in Paris ; and 1828 he was called to a chair in the Univ. of Basel, where he soon gained repute. In 1839 he discovered *Ozone* (q.v.) and 1845 invented *Gun-cotton* (q.v.), obtaining from it by dissolution in ether the material Collodion (q.v.). His later experiments were chiefly with oxygen.

SCHÖNBORN, *shön'born*, FRANCIS VON, Count : Roman Catholic archbishop : b. 1844 ; son of Count Erwin von S. He received a military education, entered the Austrian army and served in the campaign of 1860, but afterward studied for the priesthood. He was ordained a Rom. Cath. priest 1873, was rapidly promoted, became bp. of Budweis, Bohemia ; and on the decease of Cardinal von Schwarzenberg 1885, succeeded him as Abp. of Prague.

SCHÖNBRUNN, *shön'brún* : royal palace in the outskirts of Vienna (q.v.), summer residence of the Austrian imperial family.

SCHÖNEBECK, *shö'néh-bék* : manufacturing town of Prussian Saxony, 9 m. s.e. of Magdeburg ; on the left bank of the Elbe. The chemical works, which give employment to about 400 men—the salt refineries, where the brine obtained from the abundant salt-springs is boiled down, and salt made to the annual amount of 70,000 tons—and the breweries and distilleries, are the principal industrial establishments. Pop. (1885) 13,316.

SCHOODIC LAKE: see GRAND LAKE (Me.).

SCHOOL, n. *skōl* [AS. *scolu*, a school—from L. *schola*; Gr. *scholē*, leisure given to learning, a school]: place for instruction of pupils; the collective body of pupils (see—throughout this series of titles—EDUCATION: EDUCATION, NATIONAL OR STATE:—also the references: INDUSTRIAL SCHOOLS: COLLEGE: UNIVERSITY: ETC.): a sect or party in doctrines or philosophy; those who have or hold something in common, as *old school*; the colleges in the middle ages for instructing in the various branches of speculative knowledge; a shoal or compact body, as of whales: V. to instruct; to train; to tutor; to reprove. SCHOOL'ING, imp.: N. instruction in a school; reproof; reprimand. SCHOoled, pp. *skōld*. SCHOOL'MAN, n. one versed in the speculative philosophy and divinity of the middle ages. SCHOOLMEN, n. pl. the philosophers and divines of the middle ages, from about the 9th c. to the revival of learning, about the end of the 14th c. (see SCHOLASTICS). SCHOOL-MASTER, n. *skōl'más-tér*, one who teaches a school. SCHOOL-MISTRESS, n. fem. *-mís-trés*, a woman who teaches a school. SCHOOL-BOY, a boy learning at school. SCHOOL-GIRL, a girl at school. SCHOOL-DAYS, the time when at school. SCHOOL-FELLOW, or SCHOOL-MATE, a companion at school. SCHOOL-HOUSE, the building where the school is held. SCHOOL INSPECTOR, a government officer appointed to make periodical examinations of elementary schools. SCHOOL DIVINITY,

## SCHOOLCRAFT.

that divinity which discusses nice points in doctrine. **ARMY SCHOOLS** (see SCHOOLS, REGIMENTAL). **BOARD SCHOOL**, a public elementary school established under act of parliament, and under the management of a board elected by the rate-payers. **CHARITY SCHOOL**, a school where poor children are educated, and partly or wholly fed and clothed, gratuitously. **CLASSICAL SCHOOL**, a school in which Latin and Greek are taught. **COMMERCIAL SCHOOL**, school for instruction in all branches specially pertaining to a commercial or business career. **DAY-SCHOOL**, a school where children are taught daily, but not boarded. **DENOMINATIONAL SCHOOL**, a public school erected, maintained, and managed by a religious denomination, and subsidized from government grants when under state inspection. **DIOCESAN SCHOOL**, a school under the inspection of the bishop of the diocese. **ENDOWED SCHOOL**, one wholly or partially supported from permanent sources. **FREE SCHOOL**, one in which the pupils are taught gratuitously, as directed by the will of the founder and endower. **GRAMMAR SCHOOL**, in *Britain* (see GRAMMAR SCHOOL); in the *United States*, the school next in grade below the high school in the graded system of common schools—the usual grades being primary, grammar, and high, with an intermediate grade in some places between primary and grammar schools (see EDUCATION, NATIONAL OR STATE—in the United States). **INDUSTRIAL SCHOOL**, a school in which children who might otherwise become criminals are fed, clothed, lodged, educated, and instructed in some industrial employment for a certain number of years. **INFANT SCHOOL**, one for young children under seven. **MIXED SCHOOL**, a school in which both boys and girls are taught together in classes. **NORMAL SCHOOL**, a school for the training of teachers. **PAROCHIAL SCHOOL**, in *Scot.*, a school established in each parish by the compulsory statute of 1696, and supported by the landholders, who, in Scotland, are called *heritors*—now transformed into a board school under the act of 1872. **PRIMARY OR ELEMENTARY SCHOOL**, a school where children receive elementary instruction. **PRIVATE SCHOOL**, a school wholly maintained and managed under private or individual enterprise, generally for the children of the better classes. **PROPRIETARY SCHOOL**, a private school maintained and managed by a board of proprietors. **PUBLIC SCHOOL**, one of the great foundation schools of England, such as Eton, Rugby, etc. (see SCHOOLS, PUBLIC AND GRAMMAR—in England): an ordinary school supported from the taxes. **RAGGED SCHOOL**, a school for the very poorest and most destitute children. **REFORMATORY SCHOOL**, an institution for the training and reformation of young criminals. **TECHNICAL SCHOOL**, an institution in which the arts and sciences are taught, with their practical application.

**SCHOOLCRAFT**, *skôl'krâft*, HENRY ROWE: author, geologist, and ethnologist: 1793, Mar. 28—1864, Dec. 10; b. Watervliet, N. Y. He entered Union College in his 15th year, and studied French, German, Hebrew, chemistry, and mineralogy. 1817-8, he visited the mining region w. of the Mississippi, sent a collection of minerals and geological

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specimens to Washington, and wrote *A View of the Lead Mines of Missouri*, etc. (8vo, New York 1819), and a narrative, since enlarged, *Scenes and Adventures in the Semi-alpine Region of the Ozark Mountains of Missouri and Arkansas* (8vo, Philadelphia 1853). In 1820, he was appointed geologist of an exploring expedition to the Copper Regions of Lake Superior and the upper Mississippi. He wrote *Travels in the Central Portion of the Mississippi Valley* (8vo, New York 1825). In 1822, he was appointed Indian agent for the n. w. frontier, and established himself at Sault Ste. Marie. In 1823, he married Miss Johnston, grand-daughter of an Indian chief, who had been educated in Europe. At this period, he applied himself to the study of Indian history and ethnology. 1828-32, he was in the legislature of Mich. Terr., and founded its Historical Soc. For his Lectures on the Indian Languages, he received the gold medal of the French Institute. He produced several poetic works; also a grammar of the Algonquin language. In 1832, he was appointed to lead an expedition to the sources of the Mississippi (see *Narrative*—8vo, New York 1834). As supt. and disbursing agent for the Indians S. negotiated treaties by which the govt. acquired lands to the extent of 16,000,000 acres. He visited Europe 1842. In 1847 he was married a second time. In 1845 he collected the statistics of the Six Nations, and published *Notes on the Iroquois*, etc. (8vo, Albany 1848). In 1847 congress authorized his publication of *Historical and Statistical Information concerning the History, Condition, and Prospects of the Indian Tribes of the United States, in six volumes quarto; with 336 Plates by Major Eastman and others* (Philadelphia 1851-57). He pub. also *Algic Researches; Thirty Years with the Indian Tribes of the North-western Frontier; The Indian in his Wigwam*, etc.

SCHOOLEY'S MOUNTAIN, *skól'iz*: small post-village, Washington tp., Morris co., N. J.; about 3 m. from Hackettstown station, 50 m. w. from New York. It is on a plateau from which the mountain rises about 1,200 feet. Its medicinal springs and the beauty of its scenery have made it a noted summer resort. There is a church and a seminary; and in summer several hotels and boarding-houses are open. Pop. about 350.

SCHOOLS, BROTHERS OF CHRISTIAN: religious congregation in the Rom. Cath. Church, established for religious and secular education of the poor; organized in France in the end of the 17th c. by the Abbé de la Salle, canon of the church of Rheims. The members are lay brothers, all subject to one general head. Houses of the order are found in almost every country of Europe. In France this congregation was one of those specially excepted from among the suppressed orders, and which were re-established by Gen. Bonaparte in the concordat of 1801. It continues to flourish in that country; also in Belgium, Italy, s. Germany, Great Britain, and N. America. The brethren are bound by the ordinary religious vows of poverty, chastity, and obedience. Their system of education has received high testimonials, and they are one of

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the most flourishing lay orders in the Roman Church, numbering, it is said, nearly 3,000 members. Besides this order of French origin, similar institutes have been formed under the same or analogous names in other countries.—SISTERS OF THE CHRISTIAN SCHOOLS, in the Rom. Cath. Chh., congregations of women for education of poor girls: a long catalogue of these, with history and specific constitution, is in Wetser's *Kirchen-Lexicon*, IX., 782–784.

SCHOOLS, PUBLIC AND GRAMMAR: endowed schools on ancient foundations. These, in England, are usually termed Public Schools; including Winchester, Eton, Harrow, Rugby, Westminster, Charter-house, Shrewsbury, St. Paul's School, and Merchant Taylors': see ETON COLLEGE: HARROW-ON-THE-HILL: RUGBY: ETC. More modern seminaries, instituted chiefly on the model of these, are Marlborough College, Cheltenham College, Wellington College, etc. Endowed Grammar Schools of old foundation exist in almost all principal towns of England; both for day pupils and for boarders. As almost all the independent and endowed grammar schools of England are taught by men whose notions of school discipline have been formed at one or other of the great public schools, these may fairly be added to those above enumerated as Public Schools. The course and methods of instruction, and the habits of life and of discipline, are substantially similar in all endowed English middle schools, whether called Public or Grammar schools. Many of these derive not only the *fixed* emoluments of the masters from old bequests, but also the means of boarding and educating a certain number of boys on the foundation. It was originally for these foundationers or collegians that a large proportion of the old schools were founded; but round them has grown up a large community of pupils from all parts of the British dominions, with tutors and keepers of boarding-houses. The foundationers consequently form simply the nucleus of these schools. The course of instruction is adapted to prepare for the universities. Latin and Greek form the basis; geography, anc. history, arithmetic, and mathematics being admitted to a subordinate place in the curriculum; though the school-time given to arithmetic and mathematics is now much greater than formerly, and modern languages and the elements of science are receiving larger attention. There are also tutors available at these educational seats for all usual branches, including music and drawing; but these subjects, being outside of the proper work of the school, do not affect the standing of the pupils. At Rugby, the school course includes *both* French and German; and nat. science is admitted as an alternative with these. In the more modern institutions, e.g., Marlborough, Cheltenham, and Wellington Colleges, attempts have been made to provide a modern course, parallel with the classical, for those boys who either show inaptitude for classical studies, or who are not preparing for the universities. Whether education in

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science and modern languages ought to be provided at the existing grammar and public schools is at present keenly debated; but this must be ultimately a question of finance. In Germany many of the gymnasiums provide a course of modern or *real* study, and this, combined with the wide diffusion of middle schools, under the name *Real-schulen*, meets all reasonable wants of those who do not intend a professional life. In France the *Lycées* provide an ancient and modern course, parallel with each other, for all pupils above a certain age. Under that age, all are taught the same subjects. In Scotland the number of middle schools in important towns, either established by private enterprise or by the town council or endowment, renders it unnecessary for boys to seek away from their homes the preparation either for the Scottish universities or for commercial life. The Scotch schools are elastic in their system, and all admit the modern element into their course of study; but the curriculum of study does not carry pupils so far as it ought, and the funds of the schools are wholly inadequate.—See also GYMNASIUM: EVENING SCHOOLS: INDUSTRIAL SCHOOLS: EDUCATION, NATIONAL OR STATE: ETC.

In the United States, great endowed schools, preparatory to a college and university course, are usually termed academies: see, as among the oldest of these, PHILLIPS ACADEMY (Andover): PHILLIPS EXETER ACADEMY; both under Congl. auspices, but non-sectarian. Some such schools are termed seminaries, e.g., Williston Seminary, at Easthampton, Mass. In recent years the number of well-endowed institutions of this high class, admirably equipped in both the ancient and modern courses of study, has very largely increased: a fine example is St. Paul's School (Prot. Episc.), at Concord, N. H.—There are numerous institutions of a grade slightly lower—some for both sexes. Many of the public High Schools in cities and large towns also offer thorough training on an extensive course.—For the Public Grammar School in the United States, see SCHOOL—*Grammar School*.

SCHOOLS, REGIMENTAL: schools maintained at milit. posts and all permanent camps for instruction in common branches of education. They are supported in both the British and the U. S. armies. There are schools not only for the men, but also for their children. In this country the children of privates must attend, but those of the officers, though permitted, are not required to be present. Teachers for all the schools connected with a regt. are chosen from the army, are subject to the orders of the commander of the post at which they are stationed, and receive 35 to 50 cents per day extra pay for their services in this direction.

## SCHOONER.

SCHOONER *R. I. skón'ér* [Scot. *scon*, to make flat stones skip along the water: Dut. *schooner*; Ger. *schöner*, a schooner]: *vessel*, fore-and-aft rigged as regards her principal sails, with two or more masts; originally a swift-sailing, small type of vessel, but the rig has been adopted for very large vessels, and the old characteristics no longer specifically apply. There are two classes in general—the ‘fore-and-aft schooner’ and the ‘topsail schooner.’ Each of the masts, in both cases, consists of a lower and a top mast. In the ‘fore-and-aft schooner’ each lower mast carries a fore-and-aft sail, working on hoops upon the mast, and laced to a boom at bottom and gaff at top, above which is a triangular sail, generally working on hoops upon the topmast, and whose foot is stretched out to the outer end of the gaff. Each gaff and boom has a hollow at its forward end (the throat and jaws), or some equivalent device, to keep it against the mast. On diagonal stays, between the masts, a number of staysails may be set. From the bows a heavy spar or beam, called the bowsprit, projects, beyond which the flying jib-boom sometimes extends. Stays are carried from the foremast to the bowsprit and flying jib-boom, on which staysails, called jibs, generally are set. Minor variations in this rig obtain. Sometimes a lug sail is used upon the lower foremast, and lug topsails are also sometimes used. In this country, the first described simple fore-and-aft rig prevails. A large square sail is sometimes provided for the lower foremast.

The ‘topsail schooner’ carries two or three cross-yards upon her foretopmast, on which square topsail and top-gallant sails are spread. In this country ‘topsail schooners’ are not often seen. They do not sail as close to the wind as ‘fore-and-afters,’ yet possess certain advantages at sea. The original schooner had two masts, the fore and main mast. Next, a third or mizzen-mast was added, and now there are a number of four-masted schooners, as large as ships, fore-and-aft rigged throughout. Five-masted schooners have not been introduced to any extent. Schooners are easily managed by small crews. Four sailors, with captain, mate, and cook, will suffice for a schooner carrying three to five hundred tons. In the larger vessels a donkey-engine is often used to hoist sails and overhaul heavy tackle, as well as to discharge cargo. Sometimes auxiliary screw-propelling machinery is used to drive the vessel in calms and other situations. For such use the fore-and-aft schooner rig is peculiarly well suited, as the absence of cross-yards diminishes the resistance of the air when propelled by power. The rig is becoming a very favorite one in this country, and is supposed to be of American origin. The famous ‘Baltimore clippers’ of the beginning of this century were schooners.

## SCHOPENHAUER.

SCHOPENHAUER, *shō'pēn-hōw'ēr*, ARTHUR: German philosopher: 1788, Feb. 22—1860, Sep. 21; b. Danzig, son of Johanna S., authoress of considerable distinction (1770–1838). He studied first at Göttingen, where the lectures of Schulze inspired him with a love of philosophy, and afterward at Berlin and Jena, graduating at Jena 1813. During the same year, he published his first treatise, *Ueber die vierfache Wurzel des Satzes vom zureichenden Grunde* (Rudolst. 1813, 2d ed. Frankf. 1847), in which he lays down the logical basis of his future system. S. spent the winter of 1813 at Weimar, where he had the society of Goethe, and the orientalist Friedrich Maier, who first turned his attention to the ancient Indian literature and philosophy, whose study exercised decisive influence on his development. He then proceeded to Dresden, where he published a treatise on Sight and Color (1816); and three years later, his great work, *Die Welt als Wille und Vorstellung* (The World as Will and Idea, 1819; 5th ed. 1879; translated by Haldane and Kemp, 3 vols., 1883–86). After 1820 S. lived partly in Italy and partly in Berlin, till 1831, when he settled himself in Frankfort, laboring uninterruptedly in elaborating his system. The fruits of his studies were *Ueber den Willen in der Natur* (Frankf. 1836); *Ueber die Freiheit des Willens*, *Ueber das Fundament der Moral*, the supplements to his principal work, which appear in the 2d ed. of 1844; and *Parerga und Puralipomena* (Berl. 1851). The fundamental doctrine of S. is that the only essential reality in the universe is will; that what are called appearances exist only in our subjective representations, and are merely forms under which single original will shows itself. This will is not necessarily accompanied by self-consciousness, though it ever strives after its attainment; hence S. declared himself the uncompromising opponent of all the contemporary systems—those of Fichte, Schelling, and Hegel—in which the ‘Absolute Reason,’ ‘Consciousness,’ etc., are posited as the necessary basis of thought. For his great rivals, S. professed the most unmeasured scorn—calling Hegel, for example, a mere ‘scribbler of nonsense’—and in return was treated by them with such contemptuous neglect that for years his name was almost unknown to the majority of German students.—S.’s philosophy is not original, being modelled on the ancient Asiatic type; but his utterance is from his heart, and therefore penetrating; and his masterly arrangement and lucid expression give him high literary rank. His ethics are based on a thoroughly pessimistic theory of life. He taught that all life is a ceaseless battle for existence, and is of the nature of a tragedy; that happiness does not exist except as a mere negation—the relief from pain; that man’s great object should be to break down his will, quench all desires, and thus practically extinguish his self as a separate existence—thus effecting ‘a re-implication’ of his individuality into the absolute from which ‘life’ constitutes a separation. S. points man to a final goal which corresponds with the Nirvāṇa of the oriental mystic. He praises asceticism and

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benevolence as steps of approach to this. Yet this advocate of asceticism was immoderate in his use of the enjoyments of life; and this preacher of benevolence withdrew from his mother, and never saw her during the last 24 years of her life, and, in an unfounded suspicion of his sister in relation to some property, ceased all correspondence with her for 14 years.—S. has of late had an evident influence on philosophical speculation. His cynical criticism, and the deep bitterness of his heart against the world's whole artificial life, give voice to that sense of unreality which arises in the human soul in the midst of an intellectual and æsthetic culture that rests and ends in visible things—counting as practically non-existent man's spiritual nature and his relations therein to his fellow-men and to the living God.—The literature of the subject is boundless; some of the chief writers on S. being Frauenstädt, Cornill, Asher, Seydell, Haym, and Hartmann; in French, Ribot; see Miss Zimmern's *Life of S.* (1876).

**SCHORL**, or **SHORL**, n. *shawrl* [Ger. *schörl*; Sw. *skörl*, brittle]: a brittle mineral, occurring in black prismatic crystals, known also as black tourmaline (see TOURMALINE). **SCHORLACEOUS**, a. *shawr-lā shūs*, or **SCHORLY**, *shawr'lī*, possessing the properties of shorl. **SCHORL ROCK**, granitoid rock, in which the mica is replaced by schorl or tourmaline. Some specimens occur in which the felspar also is absent, and the mass is composed entirely of quartz and schorl. Schorl rocks are rare, occurring probably only as small bosses in granite.

**SCHOTTISH**, or **SCHOTTISCHE**, *shōlt'tēsh* [from Ger. *schottisch*, Scottish]: fanciful name given to a slow modern dance in  $\frac{2}{4}$  time.

**SCHOULER**, *skō'lér*, **WILLIAM**: 1814, Dec. 31—1872, Oct. 24; b. Scotland. In his infancy he was brought to New England. After studying in the public schools, he worked at printing calico; but later engaged in journalism and authorship. He owned and conducted the Lowell, Mass., *Courier* 1841–47; and was editorially connected with the *Daily Atlas*, Boston, 1847–53, the *Cincinnati Gazette* 1853–56, the *Ohio State Journal* 1856–58, and in the latter year became editor of the *Atlas and Bee*, of Boston. He served four terms in the Mass. house of representatives and one term in the Mass. senate; was a member of the state constitutional convention 1853, and adjt. gen. 1860–66. In 1857 he was adjt. gen. of Ohio. He published a *History of Massachusetts in the Civil War*, 2 vols. (1868–71). He died in W. Roxbury, Mass.—His son, **JAMES S.** (b. W. Cambridge, Mass., 1839), graduated at Harvard 1859; writer and lecturer on law: his *History of the United States under the Constitution* (5 vols.) had been issued as far as vol. IV. 1890.

**SCHOUWEN**, *skow'en*: insular portion of the province of Zeeland (q.v.). Pop. 20,000.

**SCHREINER**, *shri'nér*, **OLIVE** (pen-name **RALPH IRON**): author: b. in Cape Colony, s. Africa, 1862; daughter of a German Lutheran missionary and granddaughter (mater-

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nal side) of an English Congl. minister. Her early life was spent at the lonely mission station, and she was a grown girl before she ever saw a town. She began writing short stories at an early age, and 1882 took the MS. of *The Story of an African Farm* to London, where George Meredith examined it and introduced her to the publisher who brought it out. The story—a spiritual autobiography—was received by the public with much favor, and led to so many orders for literary work from the publishers of London that she settled there. In 1890 she returned to her African home near Cape Town, and prepared her second large work, *Dreams* (1891).

**SCHREVELIUS**, *skrā-vū'lē-ūs*, CORNELIUS: Dutch scholar: 1615–1664, Sep. 11; b. Haarlem. In 1642 he succeeded his father as rector of the Univ. of Leyden. S. was a laborious and erudite man, but possessed little critical discernment. His most notable performance was *Lexicon Manuale Græco-Latinum et Latino-Græcum* (Leyden 1654, 57, 64), of which there have been innumerable editions. S. executed many *variorum* editions of the classics—Juvenal (1648), Hesiod (1650), Terence (1651), Virgil (1652), Horace (1653), Homer (1656), Martial (1656), Lucan (1658), Cicero (1661), Ovid (1662), and Claudian (1665).

**SCHREYER**, *shri'ér*, ADOLPH. painter: b. Germany, 1828. He studied under good teachers at Munich and other cities; followed the Austrian army along the Danube 1854; and then travelled extensively in s. Russia and Turkey, Algeria, and the East; after which he settled at Paris. His landscapes are beautifully colored, and his animal portraits, especially his horses, are widely celebrated. Among his famous pictures are *Horses Frightened by Wolves*, and *The Wallachian Extra Post*.

**SCHRIVER**, *shri'ver*, EDMUND: soldier: b. York, Penn., 1812, Sep. 16. He graduated from West Point 1833, served in the Seminole war 1839, reached the rank of capt., resigned from the army 1846, became treasurer of the Rensselaer and Saratoga railroad 1847–61, was pres. of the road during the last ten years of that period, and was connected with other railroad corporations. On the opening of the civil war he re-entered the army; was aide-de-camp to Gov. Morgan of N. Y., and afterward chief staff-officer to Gen. McDowell and Gen. Frémont; was in the battles of Cedar Mountain, the second Bull Run, Chantilly, Chancellorsville, and Gettysburg, and in a large part of the Richmond campaign. He was at various times on special duty, and was inspector at West Point 1867–70. By promotion he reached the rank of col., was brevetted brig.gen. U. S. army 1864, and maj.gen. U. S. army 1865, and retired 1881, January.

**SCHROEDER**, *shrö'dér*, ANTOINETTE SOPHIE: actress: 1781, Feb. 28—1868, Feb. 25; b. Germany. At the age of 12 years she made her appearance on the stage at St. Petersburg, in which city both her parents were then acting. Two years later she was married to an actor named Stollmers, manager of another company, but she lived with him only a short time. For her second husband she

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married 1804 Friedrich Schroeder, famous singer, who died 1818. She married 1825 an actor named Kunst. She appeared in the principal theatres of Germany; and in the impersonation of tragic characters, as Phaedra and Lady Macbeth, she was one of the first actresses of her time. In 1840 she retired from the stage. She died at Munich.

**SCHROON LAKE**, *skrón*: lake about 10 m. long, and nearly 2 m. wide, about equally divided by the boundary-line between Essex and Warren cos., N. Y.; 15 m. w. of Lake George.—The lake is an expansion of *Schroon river*, which rises in Essex co., near Dix's Peak, one of the Adirondacks, flows s., and expands into S. Lake. Issuing from it at the s. extremity, it takes a s.e. and then a s.w. course through Warren co., and empties into the Hudson near Thurman Station, about 7 m. n.w. of Caldwell.—*Scroon Lake village* is at the head of the lake, which is navigable for small steamboats. The village is a popular summer-resort.

**SCHUBERT**, *shō'bërt*, FRANZ PETER: German musical composer: 1797, Jan. 31—1828, Nov. 19; b. Vienna. He began to compose about the age of 12, and from that time he produced a series of works, increasing year by year in number and importance. His life was uneventful, but through all its short span he suffered almost continually from poverty and want of recognition. His life was a succession of disappointments. The few clothes and other possessions left at his death were officially valued at 63 Vienna florins (= about \$12.16). Until long after his death, he was known almost solely by his songs; of which 457 are now published. But recent years have brought to light a vast store of his orchestral and chamber music, foremost among which stands his great symphony in C. His known works amount to over 1,000. His music is distinguished above all by its overflowing wealth of expressive melody, control over its exuberance being perhaps his only lack. It was the marvellous production of genius, not of learning. He seldom saw any of his compositions after he had finished them, and seldom heard them performed. His operatic works have probably owed their ill success mainly to the worthlessness of their *libretti*. His characteristics may be summed up in Liszt's words, 'the most poetical musician that ever was.'

**SCHULTE**, *shúl'téh*, JOHANN FRIEDRICH: born Westphalia, 1827, Apr. 23. He studied law, practiced at Berlin and other cities, became prof. of canon law at Prague 1855; and, on account of his strong opposition to the doctrine of papal infallibility, was called to a similar professorship at Bonn 1872. He is opposed to the enforced celibacy of priests, and is a prominent leader of the Old Catholic party. He has published several important works, including *Die Macht der römischen Päpste* (1871).

**SCHULTZE**, *shúl'tzéh*, MAX JOHANN SIGISMUND: anatonomist and microscopist: 1825, Mar., 25—1874, Jan. 16; b. Freiburg, Breisgau. He studied medicine at Greifswald and Berlin 1845–50; then was tutor at Greifswald till 1853,

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when he travelled in Italy in the interest of zoological research. On his return to Germany, he published the result of his studies in a work *Ueber den Organismus der Polythalamien* (1854). He was appointed extraordinary prof. at Halle 1854, and ordinary prof. of Anat. and histology at Bonn 1859. He published many monographs on the anatomy of the lower organisms. The doctrine of Protoplasm (q.v.) and the Cell-theory (q.v.) have been developed very largely through the researches of S.: he was the first to propound the modern accepted definition of the cell as 'a nucleated mass of protoplasm with or without a cell-wall.' He was also the first to recognize the identity of sarcode with the protoplasma of plants; he therefore classed them under the one name 'protoplasm.'

**SCHULTZ'S TEST** [after the discoverer]: a test for cellulose. It consists of a solution of chloride of zinc, iodide of potassium, and iodine, and colors cellulose, if present, blue.

**SCHULZE-DELITZSCH**, *shûl'tséh-dâ'lîch*, "HERMANN": economist: 1808, Aug. 29—1883, Apr. 29; b. Delitzsch, Saxony. He studied at Leipzig and Halle, practiced law, and was assistant judge at Berlin. He began the study of social problems about 1843, was elected to the national assembly at Berlin 1848, and was chairman of a committee of that body to inquire into the condition of the working people. He pointed out the evils of the guild system on the one hand, and of the 'state help' plans of the socialists on the other; and advocated the formation of co-operative associations which should enable small manufacturers to compete successfully with large companies and allow men of limited means to purchase the necessities of life at wholesale prices. He founded co-operative stores, and banks, known as Credit Unions, which were very successful. Nearly 1,000 of the unions had been established in Germany previous to 1878, and many similar organizations were formed in Belgium and other countries. He became a member of the Prussian house of deputies 1861, and from 1874 till his death was in the reichstag. He published several works on the subject of co-operation and on political economy. He died at Potsdam.

**SCHUMANN**, *shô'mân*, ROBERT ALEXANDER: German musical composer: 1810, June 8—1856, July 29; b. Zwickau, in Saxony. His gift for music showed itself early. After studying law—at the wish of his mother—two years at the Univ. of Heidelberg, he turned to music, with ambition to excel as pianist; but the disablement of a finger compelled him to relinquish this aim. His efforts were then directed for a while almost exclusively to composition of pianoforte music, in which he originated a completely new style, reflecting his own dreamy imaginative nature, often showing genuine humor, and always thoroughly solid. About the time of his marriage, 1840, to Clara Wieck, one of the greatest living pianists, he produced a series of songs, remarkable for profound suggest-

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Iveness, which have taken lasting hold on the kindred minds of his countrymen. His piano concerto, and five symphonies, productions of later life, are generally considered the finest of their class since Beethoven's. He has produced also some choral works of the highest class, notably the cantata *Paradise and the Peri*, and settings of parts of Goethe's *Faust* and Byron's *Manfred*. Among his chamber music, his piano quintet claims the highest rank. 1834-44 S was ed. of the famous *Neue Zeitschrift für Musik*, originated principally by himself; and his critical contributions have a foremost place in the literature of art. S. died at Eckenich, near Bonn. Since then his name has been the watchword of the *Romantic* school of music, in opposition to the *Ideal*, represented by Mendelssohn.

SCHURMAN, *shür'man*, JACOB GOULD, PH.D., LL.D.: educator: 1854, May 22— — ; b. Freetown, Prince Edward Island, Can. He won a govt. scholarship 1870 in the entrance examination at Prince of Wales col. at Charlottetown; entered Acadia col., Nova Scotia, 1873; in 1875 won the Canadian Gilchrist scholarship in connection with the Univ. of London, which is worth \$500 a year for 3 years; graduated 1877 at the Univ. of London with the univ. scholarship in philosophy, worth \$250 a year for 3 years; and 1878 took the degree PH.D., and won the Hibbert travelling fellowship, open to all graduates of British universities, and worth \$1,000 a year for 2 years. In 1880 he returned to Canada, where he was prof. of Eng. literature, polit. economy, and psychology, in Acadia col. for 2 years, and prof. of metaphysics and Eng. literature in Dalhousie col. for 4 years. While studying in Berlin he became acquainted with Andrew D. White, ex-pres. of Cornell univ., then U. S. minister to Germany; and as a result he was offered the chair of Sage prof. of Christian ethics and mental philos. in Cornell univ., which he accepted 1886 and held till 1891, when he became dean of the Sage school of philosophy there. In 1892 he was unanimously elected pres. of the univ., succeeding Charles Kendall Adams, D.D., LL.D., resigned. In 1892 he became editor of the *Philosophical Review*, and in 1893 of the *School Review*. In 1899 he was appointed chairman of a commission sent to study the conditions in the Philippines, and was joint author of the report (2 vols., 1900). Among his works are *The Ethical Import of Darwinism* (1888), and *Belief in God* (1890).

SCHURZ, *shürts*, CARL, LL.D.: statesman: b. Liblar, Prussia, 1829, Mar. 2. He was educated in the gymnasium at Cologne and at the Univ. of Bonn; aided Prof. Gottfried Kinkel in publishing a liberal newspaper; took part in an unsuccessful attempt to create a revolution at Bonn 1849; fled with Kinkel to the Palatinate, and was active in the revolutionary army in the defense of Rastadt; fled thence to Switzerland; and, returning to Germany 1850, aided Kinkel in escaping from the fortress of Spandau. In 1851-2 he was in Paris, corresponding with German newspapers and teaching. In 1852 he removed to the

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United States, spent three years in Philadelphia, and settled in Madison, Wis., 1855. He was active with pen and voice in the presidential campaign 1856, became leader of the German element in the new republican party, was defeated for lieut. gov. 1857, began public speaking in English 1858, and began practicing law in Milwaukee 1859. In 1859-60 he delivered a series of public lectures in New England. He was conspicuous in the national republican convention and the presidential campaign 1860, and during a part of 1861 was U. S. minister to Spain, resigning to enter the army. In 1862, Apr., he was commissioned brig. gen. of vols.; 1863, Mar. 14, was promoted maj. gen.; and commanded a div. in the second Bull Run and at Chancellorsville, and the 11th corps at Gettysburg; and took part at Chattanooga. Immediately after the war, he made a tour of the s. states under a commission by Pres. Johnson. In 1866-68 he engaged in journalism in Detroit and St. Louis; 1869-75 was U. S. senator from Mo.; 1872 was pres. of the national liberal convention; 1875 settled in New York; 1876 supported the canvass of Gov. Hayes for pres.; 1877-81 was sec. of the interior dept.; 1881-83 was editor-in-chief of the *Evening Post*; and 1888-91 was American director of the Hamburg-American steamship line. He published a vol. of speeches (Philadelphia 1865); a *Life of Henry Clay* (Boston 1887); and one of *Abraham Lincoln*, in the *American Statesmen Series* (Boston 1891).

## SCHUYLER.

SCHUYLER, *ski'ler*, EUGENE, LL.D.: diplomatist: 1840, Feb. 26—1890, July 18; b. Ithaca, N. Y.; son of George Washington S. He graduated from Yale College 1859, from the Columbia College Law School 1863, and practiced law in New York till 1866. He was U. S. consul at Moscow 1866–69, at Reval 1869–70, sec. of legation at St. Petersburg 1870–76, and while on leave of absence 1873 travelled extensively in Turkestan, Khokan, and Bokhara; was consul-gen. at Constantinople 1876–78, and investigated the massacres by the Turks in Bulgaria; was consul at Birmingham 1878–9; consul-gen. at Rome 1879–80, at Bucharest 1880–82, and in Greece, Servia, and Roumania 1882–84; engaged in literary work in the United States till 1889, when he became consul-gen. to Egypt, which office he held at his death. He was a member of various learned bodies and received decorations from several foreign governments. Among his books were: *Turkestan* (1876); *Peter the Great, Emperor of Russia* (2 vols. 1884); and *American Diplomacy and the Furtherance of Commerce* (1886). He died at Cairo, Egypt.

SCHUYLER, PETER: 1657, Sep. 17—1724, Feb. 19; b. Albany, N. Y.; second son of Philip S., who emigrated from Amsterdam to Albany. S. began public life with appointment as lieut. of militia, and was promoted to col.; 1688, July, when Albany was incorporated as a city, he became its first mayor. In 1691 he commanded the force sent against the French and Indians, and 1709 was second in command of the expedition against Montreal. He had much influence with the Five Nations, conducted all their treaties, and was for many years chairman of the board of commissioners for Indian affairs. In 1692 he became a member of the council, and 1719 its pres., and in this capacity acting gov. until 1720, Sep., when Peter Burnet, the gov., arrived.—He died at Albany.

SCHUYLER, PHILIP JOHN (usual signature PHILIP S.): soldier: 1733, Nov. 22—1804, Nov. 18; b. Albany, N. Y.; nephew of Peter S. He recruited a company, of which he was made capt., for the French and Indian war; was elected 1768 to the colonial assembly, and became a leader of the colonists in their disputes with the mother country; was a member of the continental congress at Philadelphia 1775, and was appointed maj. gen. in the army in June of that year. He organized troops; acted as quartermaster-gen., commissary-gen., and Indian commissioner; resigned 1776, Sep. 14, on account of the intrigues of Gen. Gates, but congress refused to accept his resignation; was re-elected to congress 1777, and was placed in command of the northern dept.; was superseded by Gen. Gates, who charged him with neglect of duty in allowing the capture of Ticonderoga, but he was fully exonerated by a court-martial; resigned his commission 1779, and served in congress till 1781. He was a member of the N. Y. state senate 1781–84, 1786–90, and 1792–97; was a senator in the national congress 1789–91 and 1797–8, resigning in the latter year on account of ill-health. He was one of the

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leaders of the federalist party, was one of the first and strongest advocates of the N. Y. canal system, erected the first flax-mill in America, and aided in building Union College. He died at Albany. His *Life and Times*, by Benson J. Lossing, 2 vols., appeared 1860-62, enlarged ed. 1872.

SCHUYLKILL, *skū'l'kil*, RIVER; rising 10 m. n.e. of Poitsville, in the carboniferous highlands of the e. centre of Penn., passing through the Kittatinny Mountain, and flowing in all 130 m. s.e., empties into the river Delaware at the s. limit of Philadelphia. It passes through Philadelphia, and is the chief water-supply of that city.

SCHWALBACH, *shwāl'bāch*, or LANG'ENSCHWAL'BACH, *lāng'en-*: town in Hesse-Nassau, 12 m. n.w. from Wiesbaden. It lies in a deep valley, and is noted for its mineral springs, containing iron and impregnated with carbonic acid. It was a very popular watering-place as early as 1750; but declined greatly till 1866, when it was visited by the empress of France and the empress of Russia, and again became a fashionable resort.—Pop. about 2,800. The summer visitors number about 5,000.

SCHWANTHALER, *shwān'tā-lér*, LUDWIG MICHAEL: German sculptor: 1802, Aug. 26—1848; b. Munich; son of Franz S., also a sculptor. Young S. entered his father's workshop at the age of 16; and on his father's death 1821, he undertook to carry on the business. His first important commissions were received 1824 from King Maximilian. After brief residence in Rome, he set up a studio at Munich, and shortly after executed for the Glyptothek there two fine bas-reliefs from Homer: *Achilles Struggling in the Scamander*, and the *Battle by the Ships*, besides a statue of Shakespeare for the saloon of the theatre, and the Bacchus-frieze for the banqueting-hall in the palace of Duke Maximilian. In 1832 he revisited Rome, to prepare models for that portion of the national monument of Valhalla intrusted to his supervision. He remained two years. On his return to Munich, he began his bas-reliefs to illustrate Pindar's *Epinikia* (Triumphal Odes) and the myth of Aphrodite—the latter a frieze. In 1835 he was appointed prof. at the Munich Acad. Henceforth the interest of his career is mainly professional; but the number of his works is remarkably great for his comparatively short life; perhaps less productivity might have made his undeniable excellence more uniform; still his place is in the first rank of German sculptors. His distinguishing characteristics are thorough originality of design and boldness of imagination; while the extraordinary extent of his acquaintance with the sculpture of Greece and of the middle ages gave great richness and variety to his execution of details. S.'s style has been designated as modern-antique, therefore characterized by conventionalism as opposed to the realistic. Among his works are 24 statuettes in the Pinakothek at Munich; the great bas-relief frieze (in the Barbarossa Hall), more than 200 ft. long; the models for the 12

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statues of the Ancestors of the House of Wittelsbach, the 15 colossal statues for the front pediment of the Valhalla, the models of the 15 statues of the *Battle of Arminius* for the n. end of the same structure, and the model of the colossal statue of Bavaria, 54 ft. high; a marble statue of Emperor Rudolf for the cathedral of Spires, models for the statues of Goethe and Jean Paul Richter, a statue of Mozart, marble groups of Ceres and Proserpina (at Berlin), etc., besides many works by his pupils from his designs. He died in Munich.

SCHWARTZ: see SCHWARZ.

SCHWARZ, *shwárts*, BERTHOLD: German alchemist and Franciscan monk: b., it is conjectured, at Freiburg, Breisgau (now a part of Baden), about the beginning of the 14th c. It is believed that his name was Constantin Aucklitz, and that he was named Schwarz (black) in the monastery at Mentz, because of his liking for the study of the black arts. He is said to have invented gunpowder while in prison on the charge of sorcery about 1330; but as gunpowder was known before this date, he may have made some practical application of his knowledge of it about this time. In 1853 a monument was erected to him at his supposed birthplace, Freiburg.

SCHWARZ, CHRISTIAN FRIEDRICH: German Prot. missionary: 1726, Oct. 8—1798, Feb. 13; b. Sonnenburg, in Brandenburg. He studied at Halle; and having resolved to become a missionary in the E. Indies, obtained ordination at Copenhagen 1749, with the view of joining the Danish mission at Tranquebar, where he arrived 1750, having meanwhile sojourned in England to acquire the language. He had previously learned Tamil. His career is a beautiful example of what may be accomplished by a union of piety, integrity, good sense, and charity. After laboring 15 years at Tranquebar, he went to Trichinopoly, where he founded a church and school, and acted as chaplain to the garrison. Here the fruits of his long and consistent career of pious activity gradually began to show themselves in considerable conversions from Hinduism. In 1777 another missionary was sent to his assistance; and by the permission of the rajah of Tanjore, whose close friendship S. had acquired, he built a church in that city. So highly did the native rulers admire his integrity, that once, when Hyder Ali, of Mysore, was arranging terms of peace with the Madras govt., he demanded that S. should act as their agent—'him, and no other one,' said the sultan, 'will I receive and trust.' On this occasion, S. resided three months at Seringapatam. During the terrible Carnatic war which soon followed (1781-83), and for which S. thought the British were blamable, a striking testimony was given of the universal respect for his character. The inhabitants and garrison of Tanjore were dying of starvation, and neither the British nor the rajah could induce the cultivators to sell them provisions. In despair, S. was appealed to, and when he gave his word that payment should be made, the farmers believed him,

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and sent the requisite supplies. On the death of the rajah of Tanjore 1787, S. was appointed tutor and guardian of his young son, Maha Sarboji, who, under S.'s care, developed into one of the most accomplished sovereigns in or out of India.

SCHWARZBURG, *shwártz'búrch*, HOUSE OF: one of the oldest German families, founded about the middle of the 12th c., by Sizzo, Count of Schwarzburg and Käsernburg. The two sons of Sizzo were Heinrich, who succeeded his father as Count of Schwarzburg, and Günther, who became Count of Käsernburg. The former, dying childless 1184, his possessions went to his brother, who left two sons, Günther, who continued the family of the Counts of Käsernburg, and Heinrich, from whom sprang the Counts of Schwarzburg. In 1349 Günther XXI., younger son of Heinrich XII., was elected Emperor of Germany, but he died within the year of his election. Count Günther XL. of Schwarzburg and Arnstadt, who introduced (1541) the Reformation into his states, was the common ancestor of the two existing lines of the Schwarzburg family; his son Johann Günther founding the line of Schwarzburg-Sondershausen (q.v.), and his son Albert that of Schwarzburg-Rudolstadt (q.v.).

SCHWARZBURG-RUDOLSTADT, *-ró'dól-stát*: Thuringian principality in the German empire; bounded e. by Weimar, Altenburg, and Meiningen, with a detached part, 30 m. n., in Prussian Saxony: 367 sq. m. It consists of the Upper Lordship (*Rudolstadt*, 282 sq. m.) and the Lower Lordship (*Frankenhausen*, 85 sq. m.). The Schwarza, Ilm, and Saale water the surface, mostly covered with spurs of the Thüringer-wald. The ordinary crops are raised, and timber, salt, and metals are the principal products. The principality contains many spots distinguished for beautiful scenery; and the vale of the Schwarza, the convent-ruins of Paulenzelle, and the remains of the castle of Kyffhausen, attract many visitors. S. has a diet of 16 members, of whom 12 are chosen by general election. S. has one vote in the federal council, and one in the diet.—Pop. (1880) 80,296; of whom more than 76,000 were Lutherans; (1890) 85,863; (1900) 93,059.

SCHWARZBURG - SONDERSHAUSEN, *-són'dérss-how'zen*: Thuringian principality in the German empire; partly surrounded by Prussian Saxony; 333 sq. m. It consists of a Lower Lordship (*Sondershausen*) and an Upper Lordship (*Arnstadt*): the former, watered by the Helbe and Wipper, is fertile and agricultural; while the latter is mountainous, the seat of active manufactures. The diet contains 5 members nominated by the prince, 5 chosen by the most heavily taxed, and 5 by general election. S.-S. has one voice in the federal council, and sends one representative to the imperial diet.—Pop. (1880) 71,107, mostly Prot.; (1890) 75,510; (1900) 80,898.

## SCHWARZENBERG.

SCHWARZENBERG, *shwär'tsen-bërh*: princely family of Germany, dating from 1420, when *Erkinger von Seinsheim* purchased the lordship of S. in Franconia, and was raised (1429) by Emperor Sigismund to the dignity of Baron of the Empire. Two of this family have acquired European reputation: first, ADAM, Count of S. (1587-1641), prime-minister and adviser of Georg-Wilhelm, Elector of Brandenburg. He was all-powerful during the Thirty Years' War, and brought down terrible calamities on Brandenburg by his obstinate adherence to the alliance with Austria against the Prot. league, for which he was punished after the accession of the 'Great Elector,' 1640, by being despoiled of his power, and imprisoned in the fortress of Spandau, where he died.—For the other most distinguished member of this family, see SCHWARZENBERG, KARL PHILIPP.

SCHWARZENBERG, *shwär'tsen-bërh*, FRIEDRICH JOHANN JOSEPH CELESTINUS VON: 1809, Apr. 6—1885, Mar. 2; b. Vienna; descended from a noble German family. He studied law, but afterward entered the Rom. Cath. priesthood, and was rapidly advanced. When only 27 years of age he became abp. of Salzburg. 6 years afterward a cardinal, and at the age of 41 abp. of Prague. On the ground of its inexpediency, he opposed the promulgation of the doctrine of the infallibility of the pope, but afterward accepted the decision of the council that it should be received; and in the Austrian house of lords he opposed the reform of the school laws.

SCHWARZENBERG, KARL PHILIPP, Prince of: Austrian field-marshall: 1771, Apr. 15—1820, Oct. 15; b. Vienna. He served first against the Turks, and had risen to the grade of lieut. field-marshall 1799, at which date he raised a regiment of uhlans at his own cost. He was under the orders of Mack in the campaign of 1805, and commanded a division at Ulm; but when he saw that the battle was lost, he cut his way through the French army, and retired with his regiments to Eger, afterward taking part in the great battle of Austerlitz. He was ambassador at the Russian court 1808, by the express wish of the emperor Alexander; fought at Wagram 1809; and after the treaty of Vienna, conducted the negotiations preliminary to the matrimonial connection of Napoleon with the Hapsburg family; and both in this capacity and as ambassador at Paris, so gained the esteem of Napoleon that the latter expressly demanded for him the post of gen.-in-chief of the Austrian contingent of 30,000 men which had been sent to aid France against Russia 1812. S. with his little army entered Russia from Galicia, passed the Bug, and achieved some slight successes, but was afterward driven into the 'duchy of Warsaw' (see POLAND), and took up a position at Pultusk, where he concluded with the Russians an armistice which secured the French retreat. S. was much blamed for his dilatory conduct at the time; and his tardiness, ascribed by the French historians to secret instructions from his own govt., has since been much animad-

## SCHWARZWALD—SCHWEIDNITZ.

verted on by them; but nevertheless Napoleon concealed any dissatisfaction he might have felt, and demanded (1813) for him from the Austrian govt. the baton of field-marshall. After brief sojourn at Paris, S. was appointed to command the Austrian army of observation in Bohemia; and when Austria joined the allied powers, he became generalissimo of the armies of the coalition; gained the victory of Leipzig (q.v.), and introduced a cautious system of tactics, which insured a progressive hemming-in of the French, and, in spite of their occasional successes, completely wore them out. On the return of Napoleon from Elba, S. obtained the command of the allied army on the Upper Rhine, and a second time entered France. On his return to Vienna, he was made pres. of the imperial council for war, received an extensive grant of lands in Hungary, and was allowed to engrave the imperial arms of Austria on his escutcheon. He died of paralysis at Leipzig.—His nephew, FELIX LUDWIG JOHANN FRIEDRICH, Prince of S. (1800–52), distinguished himself in the Italian campaign of 1848, was placed at the head of affairs at Vienna, called in the aid of the Russians against Hungary, and pursued a bold policy in Germany. He died at Vienna.

SCHWARZWALD: see BLACK FOREST.

SCHWEDT, *shwēt*: handsome town of Prussia, province of Brandenburg, on the Oder, 31 m. s.s.w. of Stettin. Weaving, brewing, manufacture of soap, and of tobacco, here extensively grown and sold, are principal industries. Pop. (1880) 9,899; (1890) 9,801.

SCHWEGLER, *shwēglēr*, ALBERT: German historian and theologian: 1819, Feb. 10—1857, Jan. 5; b. Michelbach, Würtemberg. He studied at the Univ. of Tübingen (1836–40) and became a disciple of Dr. Baur and the Tübingen school in theology and criticism. In 1842 he was parish vicar at Bebenhausen, but resigned the charge 1843, and became *privat-docent* of philos. and classical philol. at Tübingen, and 1848 was appointed prof. of Roman literature and antiquities there, and later of anc. history.—S. asserts that early Christianity was doctrinally Ebionism; and creates for the early church a history according to this hypothesis. His best-known works are: *Der Montanismus* (1841); *Das Nachapostolische Zeitalter* (1846); *Geschichte der Philosophie* (1848, 11th ed. 1882); *Römische Geschichte* (1853); and *Geschichte der griechischen Philosophie*, published 1859, after his death at Tübingen.

SCHWEIDNITZ, *shwid'nits*: charmingly situated town of Prussian Silesia, on the left bank of the Weistritz, 42 m. s.e. of Liegnitz, about the same distance s.w. of Breslau by railway. Woolen goods, leather, and agricultural implements are manufactured; and the fairs for corn, cattle, and yarn are much frequented. S. was besieged and taken four times within 50 years, the last time by the French 1807, when the defenses were mostly destroyed. Pop. (1816) 10,046; (1885) 23,775; (1890) 24,780.

## SCHWEINFURT—SCHWEINITZ.

SCHWEINFURT, *shwin'fūrt*: ancient, and long an imperial free city, *Trajectus Suevorum* of the Romans, now a town of Bavaria, in Lower Franconia, on the Main, 29 m. n.e. of Wurzburg by railway. It contains a beautiful market-place, in which important cattle and wool markets are held. Wine-culture, sugar-refining, and manufactures of chemicals and dyeing materials, as white-lead, ultramarine, Schweinfurth green, etc., are carried on: see GREEN COLORS.—Pop. (1880) 12,601, one-fourth Rom. Catholics; (1890) 12,472.

SCHWEINFURTH, *shwin'fūrt*, GEORG AUGUST: African traveller, b. Riga, Russia, 1836, Sep. 29. He studied at Heidelberg, Munich, and Berlin, making botany his specialty. In 1864 he made a journey through the valley of the Nile and along the coasts of the Red Sea; and on his return to Berlin in 1866, had the botanical, zoological, and geological fruits of his travels classified. In 1868, by aid of a grant from the Royal Acad. of Sciences of Berlin, he made his way, with the ivory-traders, from Khartoum into the interior, along the valley of the White Nile. Between the 4th and 6th parallels of n. lat., he penetrated as far w. as the 26th meridian, carefully observing the countries and the various tribes. He returned 1872; and 1874 published *Im Herzen von Afrika*, 2 vols.: an Eng. transl., *The Heart of Africa*, was pub. the same year.

SCHWEINFURTH-BLUE [after a town in Bavaria]: color, probably the same in substance as Scheele's green, prepared without heat, or treated with an alkali and digested in water. SCHWEINFURTH-GREEN ( $CnAs_2O_4)_3Cn(C_2H_3O)_2$ : rich green pigment, a cupric arsenite and acetate, very poisonous.

SCHWEINITZ, *shwi'nīts*, EDMUND ALEXANDER VON, D.D.: 1825, Mar. 20—1887, Dec. 18; b. Bethlehem, Penn.; great-great-grandson of Count Zinzendorf. He graduated from the Moravian theol. seminary at Bethlehem 1844; studied at the Univ. of Berlin; was settled as Moravian pastor at Canal Dover, O., 1850; and was afterward pastor in Penn., at Lebanon, Philadelphia, and Lititz, and at Bethlehem 1864–80. He was for a long period pres. of the theol. seminary at Bethlehem, and of the Northern conference of the Moravian Church in this country; and was elected bishop 1870. He was held in high esteem beyond the bounds of his denomination. He published *The Moravian Manual* (1859); *The History of the Unitas Fratrum* (1885); and other works. He died at Bethlehem.

## SCHWEINITZ—SCHWERIN.

SCHWEINITZ, *shwē'nīts*, LEWIS DAVID VON, PH. D.: botanist: 1780, Feb. 13—1834, Feb. 8; b. Bethlehem, Penn. He was educated in the Moravian schools in this country and in Germany, remained abroad 14 years; returned 1812, was a pastor in Salem, N. C., and while there was elected pres. of the Univ. of North Carolina, but declined because he preferred church work; and was settled in Bethlehem 1821. He discovered more than 1,200 species of fungi and about 200 species of other plants, most of which were little known; and catalogued a great number of plants collected in the n.w. by Thomas Say. He published several catalogues and valuable botanical monographs. He died at Bethlehem.

SCHWENKFELD, *shwēn'k'fēlt*, KASPAR VON: Protestant mystic: 1490–1561, Dec. 10; b. Silesia. He was descended from a noble family, was educated at the Univ. of Cologne, and after serving at smaller courts connected himself with the Duke of Liegnitz. He accepted the principles of the Reformation, and for a time was active in their promulgation, but afterward diverged therefrom, and incurred censure from both Rom. Catholics and Protestants. After leaving Liegnitz, he lived 5 years in Strasburg, and afterward in other cities. On account of religious persecution he could not remain long in a place. He published the *Grosse Confession*, and other books. He died at Ulm. SCHWENK'FELDIANS, or SCHWENK'FELDERS; religious sect; organised by Schwenkfeld and known among themselves as ‘Confessors of the Glory of Christ.’ At the death of the founder there were members in all parts of Germany. To escape the persecution of the Jesuits, many of them came to Penn. 1734. They place little stress on sacraments and ordinances, believe in the intimate and inseparable union of the human and the divine in Christ, that Christ became completely deified and glorified only by his ascension, and they place their faith in a fellowship with Christ in his deified state more fully than in atonement through his death. They make a distinction between the Scriptures; which they regard as the outward word of God and as liable to pass away, and the Spirit, which they regard as the inward word and which they believe will be eternal. They hold somewhat peculiar views regarding church membership and discipline. There are about 1,000 Schwenkfeldians in Penn. They have houses of worship, ministers, and several schools.

SCHWERIN, *shwēr'in*: city, cap. of the grand duchy of Mecklenburg-Schwerin; agreeably situated 110 m. n.w. of Berlin; on the w. shore of the Schweriner See, a lake 14 m. long, 3 m. broad, abounding in fish. S. is divided into the old town, the new town, and the suburb; has many fine buildings, of which most conspicuous is the ducal palace, built 1844–57, with many towers (highest 236 ft.). S. contains one of the finest Gothic cathedrals in n. Germany, begun 1248, and finished in the 15th c. The ducal castle, erected by Wallenstein, is on a small island. In S. there are tobacco-factories, an iron-foundry, breweries, etc. Pop. (1890) 33,730; (1900) 38,672.

## SCHWYZ—SCIÆNIDÆ.

SCHWYZ, *shwīts*: one of the mountain cantons in the middle of Switzerland; bounded n. by the canton of St. Gall and the canton and Lake of Zürich, s. by the canton of Uri and the Lake of Lucerne; 350 sq. m.; pop. (1900) 55,385, of whom less than 1,000 were Protestants. The whole surface is covered with mountains, except small tracts in the s.w. and n.e.; but there are no glaciers, nor any perpetual snow except on the Rieselstock, 8,890 ft. high, on the e. frontier. The canton comprises a third part of Lake Zug, the most n. angle of the Lake of the Four Cantons, the whole of the mountain-mass of the Righi (q.v.), the plain in which lies the small Lake Lowerz, and the valleys of the Muotta, Sihl, and Aa, principal rivers. Cattle-breeding is the employment of almost all the inhabitants, and the number of cattle is estimated at about 20,000. Only about one-thirtieth of the whole area is cultivable; fruits and wine are produced to some extent; also cattle, cheese, and timber for export. Woven fabrics for home use are almost the only manufactures.

S., one of the three original cantons, also one of the Four Forest Cantons, has supplied the name to the whole country of which it forms a part. The govt. is a representative democracy.—SCHWYZ, the cap., is a small town (pop. 6,543), most picturesquely situated 17 m. e. of Lucerne. It has a beautiful parish church.

SCIACCA, *shāk'kā* (anc. *Thermæ Seluntinæ*): seaport on the s. coast of Sicily, province of Girgenti; 37 m. w.n.w. of the city of Girgenti. It is defended by the castle of Luna, is surrounded by old walls, and has a fine cathedral founded 1090. Outside the walls are the hot springs visited by invalids; and on a neighboring height, the so-called *Stufe di St. Calogero*. At the bottom of one of the wells a noise is heard resembling that of a cascade.—Pop. 23,000.

SCIÆNIDÆ, *sī-ē'nī-dē*: family of acanthopterous fishes, somewhat resembling perches; having a compressed body; a simple or double dorsal fin, the first part spiny; gill-covers variously armed; head generally inflated, and



*Sciaena aquila* (Maigre).

its bones cavernous; scales ctenoid, in general obliquely ranged. The S. are divided into many genera, and widely distributed. Most are marine, but a few inhabit fresh water. Two species, the Maigre (q.v.) and the Bearded Umbrina, are excellent for the table. The power of emitting sounds which belongs to the maigre is possessed also by others of the family in a remarkable degree. Among these are species of *Pogonias* (q.v.), as *P. chromis*, known by the name DRUM-FISH, because the sound which it emits resembles that of a drum.

## SCIAGRAPH—SCIENCE.

**SCIAGRAPH**, n. *sī'ă-grăf* [Gr. *skia*, a shadow; *graphō*, I write or describe]: in *arch.*, the profile or section of a building to exhibit its interior structure. **SCIAGRAPHY**, n. *sī'ăg'ră-fī*, or **SCIOGRAPHY**, art of sketching and delineating shadows as they fall in nature; art of delineating buildings on a vertical plane: see SECTION. **SCIAGRAPH'ICAL**, a. -*ĭ-kăl*, pertaining to sciagraphy. **SCIAGRAPH'ICALLY**, ad. -*lĭ*.

**SCIATICA**, n. *sī'ăt'ĭ-kă* [mid. L. *sciat'ică*, sciatica—corrupted from L. *ischiadicus*, subject to pain in the hips—from Gr. *is'chias*, a pain in the hips—from *is'chiōn*, the hip-joint: F. *sciatique*]: rheumatism of the hip; hip-gout: **SCIAT'IC**, a. -*ik*, or **SCIAT'ICAL**, a. -*ĭ-kăl*, pert. to rheumatic affections of the hip. **SCIAT'ICALLY**, ad. -*lĭ*.—*Sciatica* is properly neuralgia of the great sciatic nerve: see NERVOUS SYSTEM. It has been shown by Graves to be a frequent complication of gout; but rheumatism, or exposure to cold and wet, is its most common cause. It is characterized by irregular pains about the hip, especially between the great trochanter of the thigh-bone and the bony process on which the body rests when sitting, spreading into neighboring parts, and running down the back of the thigh to the leg and foot; or the pains may occupy only isolated parts, as the knee-joint, the calf of the leg, or the sole of the foot. S. is a very obstinate disease, but the treatment is the same as that of neuralgia generally, except when it is merely a complication of gout, in which case the primary disease must be attacked as well.

**SCIATIC STAY**, *sī'ăt'ik* [possibly a corruption of *Asiatic*]: in merchant-vessels, strong rope fastened between the main and foremast heads. When loading or unloading, a travelling tackle is suspended to it, which can be brought over the fore or main hatchway as occasion demands.

**SCICLI**, *shik'lē*: town of Sicily, province of Syracuse, on the small river Scicli, 21 m. w.s.w. from Noto. Woolen manufacture is carried on. S. is supposed to be the anc. *Casmene*. Pop. 10,029.

**SCIENCE**, n. *sī'ĕns* [F. *science*—from L. *scien'tiā*, knowledge, science—from *scīū*, I know: It. *scienzia*]: acknowledged truths and laws, in any department of mind or matter, digested and arranged into a system; profound or complete knowledge (see SCIENCES). **SCIENTIFIC**, n. *sī'ĕn-tif'ik*, or **SCI'ENTIF'ICAL**, a. -*ĭ-kăl* [L. *scientiā*, knowledge; *faciō*, I make]: according to science; producing or containing certain knowledge. **SCIENTIF'ICALLY**, ad. -*lĭ*. **SCI'ENTIST**, n. -*tĭst*, one versed in science; a savant—a term which originated in the United States. **ABSTRACT**, **PURE**, or **THEORETICAL SCIENCES** are regarded as six in number, viz., ‘mathematics, physics, chemistry, biology, psychology, sociology,’ and treat of the knowledge of powers, causes, or laws considered apart from all applications; the knowledge of reasons and their conclusions. **CONCRETE**, **DERIVED**, or **APPLIED SCIENCES** apply the knowledge of the powers treated of to concrete phenomena, and are such as ‘meteorology, mineralogy, botany, zoology, geology, geography,

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And in a limited sense astronomy; the application of scientifically obtained facts and laws to some practical end, as in ‘navigation, engineering, mining, medicine,’ etc. (see SCIENCES). INDUCTIVE SCIENCE, the process of scientific investigation which establishes a general law by actual observation of known facts and repeated experiments. NATURAL SCIENCE, the knowledge of causes and effects, and of the laws of nature. THE SEVEN SCIENCES, among *anc. authors*, these were grammar, logic, rhetoric, arithmetic, geometry, astronomy, and music.—SYN. of ‘science’: literature; art; knowledge; erudition; letters.

SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF : society for promoting the object indicated in its title, by holding in different cities assemblies of its members for public addresses and the reading of papers on topics connected with the natural sciences, and by publishing the same; also by aiding the prosecution of original scientific research. The ‘Amer. Assoc.’, or A. A. A. S., was organized under its present name 1847, having already existed 27 yrs. as an assoc. of Amer. geologists and naturalists which, like the Amer. Assoc., held its annual meetings in different cities of the Atlantic states. The constitution of the new organization was adopted at Philadelphia 1848, and the assoc. was incorporated by the Mass. legislature 1874. The meetings are held yearly in cities named at the meeting of the previous year. In the *Proceedings*, published annually in one vol., all the papers, essays, and memoirs presented to the annual meetings are printed: each annual member is entitled to a copy.—See SCIENCE, NATIONAL ACADEMY OF.

SCIENCE, CHRISTIAN: system of religion founded by the Rev. Mary Baker G. Eddy, upon a spiritual interpretation of the Bible. The teachings are to be found in her work *Science and Health With Key to the Scriptures*, which is the Christian Science text-book, and is read in conjunction with the Bible at the services of the Christian Science denomination. The essence of these teachings may be gathered from the following “Scientific Statement of Being” on p. 468 of the text-book:

“There is no life, truth, intelligence, or substance, in matter. All is infinite Mind and its infinite manifestation, for God is All in all. Spirit is immortal Truth; matter is mortal error. Spirit is the real and eternal; matter is the unreal and temporal. Spirit is God, and man is His image and likeness; hence, man is spiritual and not material.”

Christian Science teaches the Christian duty of healing the sick as well as of reforming the sinner and comforting the sorrowful. The commands and promises of the Master are explicit on this point and his example unmistakable, as well as that of his disciples and apostles and the early Christians; and Christian Science represents a re-discovery of the Principle by which they healed the sick and the sinner.

Mrs. Eddy in her autobiography *Retrospection and*

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*Introspection*, relates the circumstances surrounding her discovery:

"The discovery came to pass in this way. During twenty years prior to my discovery I had been trying to trace all physical effects to a mental cause; and in the latter part of 1866 I gained the scientific certainty that all causation was Mind, and every effect a mental phenomenon.

"My immediate recovery from the effects of an injury caused by an accident, an injury that neither medicine nor surgery could reach, was the falling apple that led me to the discovery how to be well myself, and how to make others so.

"Even to the Homeopathic physician who attended me, and rejoiced in my recovery, I could not then explain the modus of my relief. I could only assure him that the divine Spirit had wrought the miracle—a miracle which later I found to be in perfect scientific accord with the divine law."

After the discovery that divine Spirit had healed her, Mrs. Eddy began her search for the *modus operandi* of this healing. She writes on p. 109 of "Science and Health":

"For three years after my discovery I sought the solution of this problem of Mind-healing; searched the Scriptures, read little else; kept aloof from society and devoted time and energies to discovering a positive rule. The search was sweet, calm and buoyant with hope, not selfish nor depressing. I knew the Principle of all harmonious Mind-action to be God, and that cures were produced, in primitive Christian healing, by holy uplifting faith; but I must know its Science, and I won my way to absolute conclusions, through divine revelation, reason, and demonstration."

Finally, after the discovery of the healing Principle of Christian Science, came her application to existing conditions. On page 11 we read:

"I submitted my metaphysical system of treating disease to the broadest practical tests. Since then this system has gradually gained ground and has proved itself, whenever scientifically employed, to be the most effective curative agent in medical practice."

The total number of Christian Science churches and societies, here and abroad, at this writing (July, 1903) is 763, showing an increase of 74 during the last year. In 1903, June, the total number of members of the Mother Church—The First Church of Christ, Scientist, in Boston, Mass.—was 27,796, of which number 3,696 united during the last year. The admissions in June were 2,695. Connected with these churches and societies are free reading rooms—nine in Greater New York alone, and one large reading room in Chicago maintained by all the churches in that city. These reading rooms are a distinguishing feature of the denomination.

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Also, in many of the cities abroad where Christian Science has spread these reading rooms are found.

The First Church of Christ, Scientist, in Boston, Mass., was finished in 1894, and was dedicated in 1895. The cost was over \$250,000. It is known as the Mother Church, all the other churches being branches of this one. This was the first Christian Science Church organized: all the others, therefore, have been built within nine years—a very remarkable growth. Membership in this church is not confined to Christian Scientists residing in Boston. Mrs. Eddy is Pastor Emeritus of this church. Her active literary career has produced, beside the text-book, *Science and Health With Key to the Scriptures*, the following lesser works on Christian Science: *People's Idea of God* (1886), *Christian Healing* (1886), *Retrospection and Introspection* (1891), *Unity of Good* (1891), *Rudimental Divine Science* (1891), *No and Yes* (1891), *Manual* (1895), *Miscellaneous Writings* (1896), *Christ and Christmas* (1897), *Christian Science vs. Pantheism* (1898), *Pulpit and Press* (1898), and *Messages to the Mother Church* (1900, 1901, 1902).

Besides these works, she has written some poetry, including several hymns.

There is a Christian Science Publishing Society which issues two monthly publications, the *Christian Science Journal* and *Der Christian Science Herald* (German), a weekly paper called the *Christian Science Sentinel*, and a quarterly containing the lesson sermons. At the Sunday services of all Christian Science churches there is no personal preaching, but correlated selections are read from the Bible and from *Science and Health* by two readers.

SCIENCES, NATIONAL ACADEMY OF : institution incorporated by act of congress 1863; having as one of its purposes to make available to the govt. the knowledge of scientific specialists and experts. The membership was at first limited to 50 members, 50 foreign associates, and an indefinite number of honorary members; but the restriction no longer exists. There are two 'classes' in the Acad.: 1, mathematics and physics; 2, natural history. It holds two meetings a year, one in Jan. (at Washington), the other in Aug. (at a city designated by the Acad.). The academy's publications are styled *Memoirs*.—See SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF.

SCIENCE, SO'CIAL : see SOCIAL SCIENCE.

## SCIENCES.

SCI'ENCES: various departments of human knowledge, so far as it has been generalized, systematized, and verified. Generality as opposed to mere particulars, system as opposed to random arrangement, and verification as opposed to looseness of assumption or mere theorizing, concur in that superior kind of knowledge dignified by the title Science. Geography, Chemistry, and Political Economy are now sciences. The first has been so for many ages, though greatly advanced in recent times; the second, scarcely more than a century; the last is still more recent. Chemical facts, and maxims of political economy, had been known from a much earlier date, but they did not in either case amount to science; the generalities were few or bad, system and certainty were both lacking. In the different branches of Nat. History—Mineralogy, Botany, Zoology—there had been a large store of accumulated facts before any one branch could be called a science. The *quality* of the knowledge is of more consequence than the quantity.

The term *Philosophy* (q.v.,) is to some extent, but not altogether, coincident with science, being applied also to the early efforts and strainings after the explanation of the universe, that preceded exact science in any department. Both names denote the pursuit of knowledge as knowledge, or for intellectual satisfaction, in contrast to a search limited to immediate practice or utility.

The S. have been variously classified, and the principles of their classification have been a subject of discussion. We shall here describe the mode of classifying them in accordance with present usage, and with the principles most generally agreed upon. It is convenient to prepare the way by distinguishing between Theoretical S., which are the S. properly so-called, and Practical S. A Theoretical Science embraces a distinct department of Nature, and is so arranged as to give, in the most compact form, the entire body of ascertained (scientific) knowledge in that department: such are Mathematics, Chemistry, Physiology, Zoology. A Practical Science is the application of scientifically obtained facts and laws in one or more departments to some practical *end*, which end rules the selection and arrangement of the whole; e.g., Navigation, Engineering, Mining, Medicine. Navigation selects from the Theoretical S.—Mathematics, Astronomy, Optics, Meteorology, etc.—whatever is available for guiding a ship on the seas, and converts the knowledge into rules or prescriptions for that purpose. The arts that can thus draw on the exact S. are by so much the more certain in their operation; they are the scientific arts.

Another distinction must be made before laying down the systematic order of the Theoretical S. A certain number of these S. have for their subject-matter each a separate department of natural forces or powers; thus, Biology deals with the department of Organized Beings, Psychology with Mind. Others deal with the application of powers elsewhere recognized to some region of concrete facts or phenomena: thus, Geology does not discuss any natural

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powers not found in other S., but seeks to apply the laws of Physics, Chemistry, and Biology to account for the appearances of the earth's crust. The S. that embrace peculiar natural powers are called Abstract, General, or Fundamental S.; those that apply the powers treated of under these to regions of concrete phenomena are called Concrete, Derived, or Applied Sciences.

The Abstract or Theoretical S., as most commonly recognized, are these six: Mathematics, Physics, Chemistry, Biology (Vegetable and Animal Physiology), Psychology (mind), Sociology (society). The Concrete S. are the Natural History group—Meteorology, Mineralogy, Botany, Zoology, Geology, also Geography, and we might, with some explanations, add Astronomy. The Abstract or Fundamental S. have a definite sequence, determining the proper order for the learner, also the order of their arriving at perfection. We proceed from the simple to the complex, from the independent to the dependent. Thus, MATHEMATICS relates to *Quantity*, the most pervading, simple, fundamental, and independent attribute of the universe. The consideration of this attribute has therefore a natural priority; its laws underlie all other laws. As Mathematics is at present understood, it has an Abstract department, which treats of quantity in its most general form, or as applied to nothing in particular—including Arithmetic, Algebra, and the Calculus—and a Concrete or Applied department—viz., *Geometry*, or Quantity in Space or Extension. It has been suggested that General Mechanics, or the estimation of Quantity in *Force*, should be considered a second Concrete department. But usually Mechanics ranks with the next Fundamental Science in order, called Physics.

NATURAL PHILOSOPHY has long been the name of a distinct department of science: the designation PHYSICS is now more common. This science succeeds Mathematics, and precedes Chemistry. Of all the Fundamental S., it has the least unity, being an aggregate of subjects with more or less connection. Mechanics, Hydrostatics, Hydraulics, Pneumatics, Acoustics, Astronomy, all are closely related; they represent the phenomenon of movement in *mass*, as applied to all the three states of matter, Solid, Liquid, and Gas. The remaining subjects—Heat, Light, and Electricity—together with the attractions and repulsions that determine Cohesion, Crystallization, etc., are described as relating to movement in the *molecule*. We have thus Molar Physics and Molecular Physics; and the tendency is now to treat the two separately.

CHEMISTRY lies between Physics and Biology, reposing upon the one and supporting the other. It assumes all the physical laws, both molar and molecular, as known, and proceeds to consider the special phenomenon of the composition and decomposition of bodies considered as taking place in definite proportions, and leading to change of properties. The composition of a cup of tea from water, sugar, milk, and infusion of tea-leaf, is physical; the composition of marble from oxygen, carbon, and calcium, is chemical. In the first case, the properties of the separate

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ingredients are still discernible: in the other, these are merged and untracable.

BIOLOGY, or the Science of Living Organization, involves mathematical, physical, and chemical laws, in company with certain others, called vital. It is usually expounded under the designations Vegetable and Animal Physiology; and in the Concrete departments, Botany, Zoology, and Anthropology.

PSYCHOLOGY, or the Science of MIND, makes a wide transition, the widest that can be taken within the whole circle of the S., from the so called material world, to the world of Feeling, Volition, and Intellect. The main source of our knowledge of mind is self-consciousness; and it is only from the intimate connection of mind with a living organism that the subject is a proper sequel to Biology. Not until lately has any insight into mind been obtained through consideration of the physical organ—the brain; so that Psychology might have been placed anywhere, but for another consideration that helps to determine the order of the S.—viz., that the *discipline*, or method, of the simpler S. is a preparation for the more abstruse. Mathematics and Physics especially train the intellect for the studies connected with mind proper, though the laws of Physics may not of themselves throw any direct light on the successions of thought and feeling.

These five S. embrace all the fundamental laws of the world, and, if perfect, their application would suffice to account for the whole course of nature. To a person fully versed in them, no phenomenon of the explained universe can appear strange; the Concrete S. and the Practical S. contain nothing fundamentally new. They constitute a liberal scientific education. It is not uncommon, however, to rank SOCIOLOGY, or the Laws of Man in Society, as a sixth primary science following on Psychology, of which it is a special development.

Dr. Neil Arnott, in his work on *Physics* (1828), gave as the primary departments of Nature—Physics, Chemistry, Life, and Mind (under which he would include the Laws of Society). He did not discard Mathematics, but regarded it as a system of technical mensuration, created by the mind to facilitate the study of the other sciences, as well as of the useful arts. The natural laws expressed by Mathematics are few and simple; and the body of the science consists of a vast scheme of numerical computation, whose value appears in its applications to Astronomy and the other physical sciences.

Auguste Comte, who, in his *Cours de Philosophie Positive*, went over the entire circle of the Theoretical, Abstract, or Fundamental S., enumerated these as follows: Mathematics, Astronomy, Physics, Chemistry, Biology, Sociology. He thus detaches Astronomy from Physics, considering it as the abstract science that brings forward and works out the Law of Gravitation. He has no distinct science of Psychology—an omission generally condemned: see POSITIVISM.

Herbert Spencer, in a tract on the *Classification of the*

## SCIENCES.

*Sciences*, takes exception to the scheme of Comte, and proposes a threefold division, according to the gradations of Concreteness in the subject-matter. The first group is termed ABSTRACT SCIENCE, and treats of the *forms* of phenomena detached from their embodiments. The most comprehensive forms are Space and Time; and the sciences corresponding are Mathematics and Logic. The second group is ABSTRACT-CONCRETE SCIENCE, or the phenomena of nature analyzed into their separate elements—Gravity in the abstract, Heat in the abstract—as in Physics and Chemistry. These are two of the Fundamental S. in every scheme, and they are called Abstract-Concrete by Spencer, in comparison with the foregoing class. The great principle, of recent introduction, termed the Law of Correlation, Conservation, or Persistence of Force, serves to connect Physics with Chemistry, and imparts to the two taken jointly a greater unity than belongs to Physics singly. The third and last group is CONCRETE SCIENCE, or natural phenomena in their totalities, or as united in actual things—Astronomy, Biology, Psychology, Sociology, Geology, etc. John Stuart Mill (*Westminster Review*, 1865, Apr.) described Comte's scheme at length, and criticised that of Spencer: see SPENCER, HERBERT.

It may be held as generally admitted that Mathematics, Physics, Chemistry, Biology, and Psychology, with or without Sociology, are the sequence of the primary or fundamental S.; and that the Natural History group, not containing any new laws of nature, are not fundamental. Astronomy, or the laws of the solar system and of the other celestial bodies, might be called a Natural History or Concrete science, if we supposed a prior abstract science that discussed the operation of gravity, together with the laws of motion in bodies generally, or without special application to the existing solar and sidereal systems. The first book of Newton's *Principia* would be the Abstract, the third book the Concrete, form of the science.

The Practical S. do not admit of any regular classification. They are as numerous as the separate ends of human life that can receive aid from science, or from knowledge scientifically constituted. Connected with Mind and Society, we have Theology, Ethics, Logic, Rhetoric, Grammar, Philology, Education, Law, Jurisprudence, Politics, Political Economy, etc. In the manual and mechanical arts are Navigation, Practical Mechanics, Engineering Civil and Military, Mining and Metallurgy, Chemistry applied to Dyeing, Bleaching, etc.

The medical department contains Medicine, Surgery, Midwifery, Materia Medica, Medical Jurisprudence. A science of Living, or of the production of Happiness by a skilled application of all existing resources, was greatly desiderated by Plato, and would be the crowning practical science.

See the titles of the various main subjects enumerated in this article; also the references under them.

## SCIENTER—SCILLY ISLES.

SCIENTER, ad. *sī·ēn'ter* [L.]: in law, knowingly; wilfully.

SCILICET, conj. *sī'lī-sēt* [L. *scilicet*, evidently, certainly—from *scīrē licet*, it is permitted to know, you may know]: namely; viz.; to wit.

SCIL'LA: see SQUILL.

SCILLITINE, n. *sī'lī-tīn* [L. *scilla*; Gr. *skilla*, the sea-onion or squill; F. *squille*]: the bitter principle of the bulb of the squill or sea-onion, much used as a domestic medicine.

SCILLY ISLES, *sī'lī*: group of about 40 islands, in a circuit of about 30 m.; about 25 m. w.-by-s. of Land's End, 40 m. w. from Lizard Point; a little w. of 6° w. long, and about 50° n. lat.; the most southern parts of the United Kingdom of Great Britain, except the Channel Islands. The group is named from a very small island, about an acre in extent, almost inaccessible, called Scilly, probably from its position near dangerous rocks, similar to that of Scylla near Sicily. By the ancients, these islands, it has been com-



Scilly Islands.

monly understood, were named Cassiterides, Hesperides, and Siluræ Insulæ. Some authorities have assumed that the term Cassiterides, or 'Tin Islands,' under which they were known to the Greeks and Romans, was applied anciently to the peninsula of Cornwall, of which county they now form part. Elton, in *Origins of English History*, affirms, however, that the Cassiterides were the headlands of Galicia, or the islands off that part of the Spanish coast, and not the Scilly Islands at all.

Numerous remains are seen of rude pillars, circles of stones, kistvaens, rock-basins, and cromlechs. The granite of which the islands are composed is, in general, rather coarse; and from its color, iron seems to be frequently associated with it. There are metalliferous veins, or lodes, in some rocks, but none that could have yielded any considerable quantity of ore. The S. I. were 936 granted by Athelstane to some monks who settled at Tresco. They

## SCIMITAR—SCINTILLATION.

were afterward granted to the Abbey of Tavistock by Henry I., and were conferred by Queen Elizabeth on the Godolphin family. They are now the property of the crown.

Only five of the islands are inhabited. St. Mary's, the largest, comprises 1,528 acres; Tresco, 697; St. Martin's, 515; St. Agnes (a light-house station), 313; Sampson and Bryher, 269. The inhabitants are chiefly engaged in agriculture. Barley, oats, and a little wheat are grown. Large quantities of potatoes are sent to London and Bristol. Fishing occupies some of the people. The climate is mild, and vegetation luxuriant. The soil is in general sandy, but in Tresco and St. Agnes it is remarkably fertile. The cliffs abound with sea-fowl, and are covered with samphire. Hugh Town, on St. Mary's, is the capital, an odd mixture of old-fashioned and neat modern houses. St. Mary's has a wild and picturesque coast-line, with precipices and caves. At Tresco are the remains of an abbey founded in the 10th c.; also the ruins of Oliver Cromwell's camp, castle, and battery, built by the Protector. St. Agnes, about three m. s.w. from St. Mary's, is well cultivated and has some fine rock-scenery: the principal building is the light-house, 72 ft. high, containing a revolving light, seen at a distance of 18 miles.

St. Mary's had pop. (1871) 1,383; the other four inhabited islands (Tresco, St. Martin's, St. Agnes, Bryher) had pop. collectively 707; total pop. (1881) 2,320.

**SCIMITAR, or SCIMITER, or SIMITAR** [Fr. *cimeterre*

—from It. *scimiterra*; Sp. *cimitarra*; Pers. *shamsher*, sword]: short curved sword having its edge on the convex side; used among eastern nations. Being usually of high temper, and its shape



Scimitar.

favorable to incision, it is a formidable cutting instrument, but is powerless as a thrusting weapon, and is not any match for the bayonet. See CIMETER.

**SCINCOIDS**, n. plu. *sīng'koyds*, or **SCINCOIDIANS**, *sīng-koyd'i-āns* [Gr. *skinkos*, a species of lizard; *eidos*, resemblance]: a family of lizards, of which the *scincus* or *skink* is the type.

**SCINDE, or SINDE**: see SIND.

**SCINK**: see SKINK.

**SCINTILLATE**, v. *sīn'til-lāt* [L. *scintilla*, a spark: F. *scintiller*, to sparkle]: to emit sparks; to sparkle, as the fixed stars. **SCINTILLATING**, imp. **SCINTILLATED**, pp. **SCINTILLANT**, a. *-lānt*, sparkling; emitting sparks. **SCINTILLATION**, n. *-lā-shūn* [F.—L.]: the act of emitting sparks, or sparkling.

**SCINTILLATION**: term denoting the sparkling, or the flickering gleam, of the stars. The phenomenon is not yet quite explained; but that it is due to the earth's atmosphere is proved by the following facts, which embrace nearly all that is known on the subject. If, on a clear

## SCIO.

evening, we look at a bright star, e.g., Sirius, we observe that the intensity and color of its light are constantly changing—from great brilliancy to almost total obscurity, from bright red to fine blue, and so on. As it rises above the horizon, these appearances diminish in intensity; and stars near the zenith scarcely scintillate at all. Again, the amount of the S. depends on the character of the weather—on some evenings, all large stars appear to scintillate strongly; on others, there is barely a trace of the appearance. It is commonly said that a planet can be distinguished from a star by the absence of S. This is nearly, but not quite, true; for feeble scintillations have been occasionally observed in Mars and Venus, and very rarely in Jupiter and Saturn. One of the reasons of the non-scintillation of planets seems to be their finite apparent size; for all the more conspicuous planets show a sensible disk even in a poor telescope, while no instrument ever constructed has shown a real disk in a fixed star. Thus, a single particle or vesicle of vapor may be large enough to conceal a star for an instant, while it could have no such effect on a planet. It is nearly certain that S. is not due to unequally heated masses of air, since it usually modifies only the *appearance*, not the *position*, of a star. Another cause of S. is easily seen in the comparatively feeble light of the planets. The S. is much less when viewed from a mountain-top.

SCIO (It. corruption of the old Greek name Chios): one of the Sporades (islands) in the Archipelago; modern Greeks, however, call it *Chio*. S., one of the most beautiful islands in the Ægean Sea, belongs to Turkey: it lies seven m. off the coast of Asia Minor, at the entrance to the Gulf of Smyrna. It is 32 m. long from n. to s., and 8 to 15 m. wide; 400 sq. m. Pop. about 60,000. It is mountainous in the n.—called ‘craggy’ in the Homeric hymn; and is extremely fertile. Silk, figs, cheese, wool, and gum-mastic are principal products; and its wine, famous in ancient times, is still esteemed. Kastro (more properly Scio), the cap., a thriving and handsome town (pop. about 17,000), is on the e. coast; has a harbor, a castle, and two light-houses; and has a growing trade in fruits, confectionery, and silk and woolen goods. The s. portion—the smallest—is least mountainous, and most fertile and wealthy.

In early times, S. formed one of the 12 Ionian states, and it contributed 100 ships to the Greek force that fought and was defeated by the Persians in the sea-fight off Miletus (B.C. 494). Its earliest history is very obscure. Chios developed the handicrafts and the arts at a very early period: Chian sculptors were famous B.C. 660–540; and the poet Ion and the historian Theopompos are illustrations of its literary art. In more recent times, the island was taken by the Genoese 1346, and by the Turks 1566, in whose hands it has since, except for a short interval, remained. It was conferred as private property on the sultana, had her protection, and consequently prospered. After a long period of ease and wealth, a dreadful calamity

## SCIOGRAPHY—SCIOPIUS.

befell the island at the outbreak of the Greek insurrection. A number of the Sciotes having, 1822, joined the Samians, who had revolted, the island was attacked by a Turkish fleet and army, and the inhabitants, enervated by peace and wealth, were indiscriminately massacred; 25,000 fell by the sword, 45,000 were sold as slaves, and 15,000 escaped from the island. Gradually the island has recovered the blow it sustained. 1881, Mar. 27—Apr. 6, S. was devastated by a series of violent earthquake shocks. The first shock occurred on Sunday and was very severe. The Genoese fortress and about 400 houses were destroyed, and the surface of the ground settled about 20 inches. Horizontal oscillations followed the vertical shock. The centre of disturbance appeared to be near Nenita, on the e. coast, where one-fourth of the population was killed. On the opposite side of the island there was no loss of life, though many houses were wrecked. In the s. and s.e. parts of the island nearly all the houses were destroyed, and more than 1,300 people lost their lives. Out of a total population of 70,000, about 4,000 were killed, 10,000 to 15,000 were injured, and 30,000 were left homeless. The survivors were relieved by subscriptions taken in Europe and the United States.

**SCIOGRAPHY**, n. *sī-ōg rū-fī*: see SCIAGRAPHY.

**SCIOLISM**, n. *sī-ō-līzm* [L. *sci'olus*, a smatterer—from *sciō*, I know: It. *sciolo*, a pretender to learning]: superficial knowledge. **SCIOLIST**, n. *-list*, one who has a smattering of many things.

**SCIOMANCY**, n. *sī-ō-mān-sī* [Gr. *skia*, a shadow; *mantī'a*, divination]: divination by the shadow.

**SCION**, n. *sī'ōn* [F. *scion*, a young and tender plant—from *scier*, to saw—from L. *secārē*, to cut]: a small twig or branch cut from one tree and grafted on another; any young branch or member, applied to the families of the nobility.

**SCIOPIUS**, *stsē-ōp'pē-ús* (Latinized form of *Schoppe*), **KASPAR**: noted classical scholar and controversialist: 1576, May 27—1649, Nov. 19; b. Neumark, in the Palatinate. He studied at Heidelberg, Altdorf, and Ingolstadt. He became known by his Latin verse and his notes on different Latin authors. He soon abjured Protestantism, becoming a Rom. Catholic; and was decorated by the pope with various titles, and received a pension of 600 florins, with a residence in the Vatican. Henceforth, his career was a series of onslaughts chiefly on his former co-religionists, but also against any whom accident or malice led him to hate. The first person whom he attacked was the illustrious Scaliger (q.v.), against whom, 1607, he launched his *Scaliger Hypobolimaeus* (Mainz). In this production, Henry IV. is also assailed. Sent 1608 by the court of Rome to the diet of Ratisbon, to observe the religious condition of Germany, he published in the same year more than 20 pamphlets against the Protestants, recommending the Rom. Cath. powers to use every means for their extermination. As the emperor of Germany was a devoted Rom. Catholic, S., on visiting Vienna, met with much favor,

## SCIOPTIC—SCIPIO.

and was raised to the dignity of count-palatine. In 1611 he fired off two libels against King James I. of England; the first, *Ecclesiasticus Autoritati Ser. D. Jacobi, Mag. Brit. Regis, Oppositus* (Hartberg); the second, *Collyrium Regium*, etc. About three years afterward, when staying at Madrid, he was dreadfully beaten by the domestics of Lord Digby, the English ambassador, in retaliation for the abuse of his sovereign. S. fled from Spain to Ingolstadt, where he issued his *Legatus Latro* against the ambassador. From 1618 for 12 years S. resided in Milan, engaged partly in philological studies, partly in theological warfare. S. was a prodigious seholar, and might have rivalled Sealiger himself in reputation, as he did in learning, had it not been for the infirmities of his temper and judgment. To this day, his works, especially those on the Latin language, are reckoned valuable.

**SCIOPTIC**, n. *sī-ōp'tīk*, or **SCIOP'TRIC**, n. *-trīk* [Gr. *skia*, a shadow; *optikos*, pertaining to the sight]: a sphere or globe with a lens fitted to a camera, and made to turn like the eye: **ADJ.** pertaining to. **SCIOP'TICS**, n. plu. *-tīks*, the science of exhibiting the images of external objects by means of the camera-obscura, or by means of lenses, in a darkened room.

**SCIOTO**, *sī-ō'tō*, RIVER: rising in the high lands of n.w. Ohio, and flowing s.e. to Columbus, then s. to its junction at Portsmouth with the river Ohio. It is 200 m. long, flows through a rich valley, is navigable 130 m., and for 90 m. feeds the Ohio and Erie canal. It is crossed by numerous railways.

**SCIPIO**, *sī-p'ī-ō*, **PUBLIUS CORNELIUS**, surnamed **AFRICANUS MAJOR**: one of the most accomplished warriors of ancient Rome, but whose reputation is perhaps somewhat greater than his merits: b.c. 237 (or 234)—b.c. 183 (or 185); son of Publius Cornelius S., who was consul b.c. 218. Africanus Major (Elder) is mentioned first as taking part, though only a youth, in the battle of the Tieinus, b.c. 218, where he saved his father's life. Two years later, he fought at Cannæ as a military tribune, and was one of the few Roman officers who escaped from that disastrous field. b.c. 212 he was elected aedile, though not legally qualified by age; and in the following year, proconsul, with command of the Roman forces in Spain. His appearance there restored fortune to the Roman arms. By a bold and sudden march he captured *Nova Carthago*, the stronghold of the Carthaginians, and obtained immense booty. His humane and courteous manners won over many of the native chiefs; and when he began the campaign of b.c. 209 his superiority over his opponents in address, if not in generalship, was manifest. At Baecula, in the valley of the Guadalquivir, he defeated Hasdrubal with heavy loss, but could not prevent him from crossing the Pyrenees to the assistance of Hannibal. b.c. 207 he won a more decisive victory over the other Hasdrubal, son of Gisco and Mago, at an unknown place called Silpia, or Elinga, somewhere in Andalusia—thus placing the whole of Spain in the hands

## SCIPIO.

of the Romans. Soon afterward he returned to Rome, where he was elected consul B.C. 205, though he had not yet filled the office of pretor; and in the following year he sailed from Lilybæum, in Sicily, at the head of a large army, for invasion of Africa. His successes compelled the Carthaginian senate to recall Hannibal from Italy. This was the very thing that S. had labored to achieve. After abortive efforts at reconciliation, the great struggle between Rome and Carthage, between S. and Hannibal, was terminated by the battle at Naragra, on the Bagradas, near Zama, B.C. 202, Oct. 19, in which the Carthaginian troops were routed with immense slaughter. Hannibal advised his countrymen to abandon what had now become a hopeless and ruinous contest, and his advice was followed. Peace was concluded in the following year, when S. returned to Rome, and received a triumph. The surname AFRICANUS was conferred on him; and so extravagant was the popular gratitude, that it was proposed to make him consul and dictator for life, honors that would have been the destruction of the constitution, but which S. was either wise enough or magnanimous enough to refuse. When his brother Lucius, 190, obtained the command of the army destined to invade the territories of Antiochus, S. served under him as legate; in fact, it was only when S. offered to do so, that the senate granted Lucius the province of Greece. Lucius, with his brother, was victorious in the war, and on his return to Rome B.C. 189, assumed (in imitation of his brother) the surname ASIATICUS. But the clouds were now gathering heavily round the Scipios. B.C. 187 Cato Major and others induced two tribunes to prosecute Lucius for allowing himself to be bribed by Antiochus in the late war. He was declared guilty by the senate; his property was confiscated; and he himself would have been thrown into prison, had not his brother forcibly rescued him from the hands of the officers of justice. B.C. 185, S. himself was accused by the tribune, M. Nævius; but instead of refuting the charges brought against him (which were probably groundless), he delivered, on the first day of his trial, a eulogy on his own achievements, and opened the second day by reminding the citizens that it was the anniversary of the battle of Zama, and therefore not a time for angry squabbling, but for religious services. He then summoned the people to follow him to the capitol, to give thanks to the immortal gods, to pray that Rome might never want citizens like himself. His audience were electrified, and the thing was done before opposition became possible. To resume the trial, was out of the question; but S. felt that popular enthusiasm was not to be trusted; that the power of the oligarchy—that compact body of ambitious and exclusive nobles—was irresistible; that its hatred of him was unappeasable, and that his day was over. He retired to his country-seat at Liternum, in Campania, where he spent the remainder of his life. S.'s daughter Cornelia was mother of the two famous Gracchi. S. is commonly regarded as the greatest Roman general before Julius Cæsar; and certainly, in the brilliancy of his gifts

## SCIPIO AEMILIANUS.

and accomplishments, he was unsurpassed; but if his career be strictly criticised, it will be found that he owed as much to fortune as to genius. Nevertheless, he won a multitude of splendid successes, and made the most of his great advantages. His beauty, bravery, and courtesy; his proud, yet pious belief that the gods favored him with their inspiration, won him the love and reverence of soldiers and women; and his magnanimity toward his fallen rival, who flitted about the eastern courts in dreary exile, is a bright feature in his character, and nobly distinguishes him from the cruel-hearted oligarchs of the senate.

SCIPIO AEMILIANUS, *ēm-il-i-ā'nūs*, PUBLIUS CORNELIUS, surnamed AFRICANUS MINOR: B.C. 185—B.C. 129; younger son of Lucius Aemilius Paulus, who conquered Macedon, but was adopted by his kinsman, Publius Scipio, son of the great Scipio, who had married the daughter of that Lucius Aemilius Paulus who fell at Cannæ. S. accompanied his father on his expedition against Macedon, and fought at the decisive battle of Pydna, B.C. 168. In Greece, he made the acquaintance of Polybius the historian, who afterward became one of his closest friends. B.C. 151 he went to Spain as military tribune, in the wake of the consul Lucius Lucullus, where he distinguished himself by his valor and his virtue. Two years later, began the third and last Punic war, which consisted mainly in the siege of Carthage. S. still held the subordinate position of military tribune; but the incapacity of the consuls, Manius Manilius, and Lucius Calpurnius Piso, and the brilliant manner in which he rectified their blunders, fixed all eyes on him. The favorite both of the Roman army and the Roman people, S. was at length, B.C. 147, when only a candidate for the ædileship, elected consul by an extraordinary decree of the Comitia, and invested with supreme command; old Cato, who could with difficulty be got to praise any one, applying to the young hero and his incapable comrades (according to Plutarch) the Homeric line—

He only is a living man; the rest are flitting shades.

The story of the siege of Carthage is well known—the despairing heroism of its inhabitants; the determined resolution, the sleepless vigilance, the incessant labors of S. After a protracted defense of months, the city was finally taken by storm in the spring of B.C. 146; and by the orders of the senate, it was levelled to the ground, and the plowshare driven over its site. S., a man of noble and refined soul, obeyed the savage behest with sorrow, even with horror. As he gazed on the ruin that he had wrought, the thought flashed across his mind that some day Rome too might perish, and the words of the *Iliad* rose to his lips--

The day shall come when sacred Troy shall perish,  
And Priam and his people shall be slain.

S., though probably the most accomplished Roman gentleman of his age, was rigorous in his observance of the antique Roman virtues; and when holding the office of

## SCIRE FACIAS—SCIROCCO.

censor B.C. 142, he strove to follow in the footsteps of Cato. But his efforts to repress the increasing luxury and immorality of the capital were frustrated by the opposition of his colleague, Lucius Mummius, the rough conqueror of Corinth. B.C. 139 S. was accused of the *crimen maiestatis* by the tribune Tiberius Claudius Asellus, but was acquitted; and soon was sent to Egypt and Asia on a special embassy. Meanwhile, however, affairs had gone badly in Spain. Viriathus, the Lusitanian patriot, had again and again inflicted disgraceful defeats on the Roman armies; and his example had roused the hopes of the Celtiberian tribes, who also rushed to war against the common foe. The contest continued with varying success; but the interest centres in the city of Numantia, whose inhabitants showed amazing courage in the struggle with Rome. For long it seemed as if the Numantines were invincible—one consul after another finding their subjugation too hard a task—but at length, B.C. 134, S., re-elected consul, was sent to Spain; and after a siege of eight months, forced the citizens, who were dying of hunger, to surrender, and utterly destroyed their homes. He then returned to Rome, where he was prominent in political affairs, appearing as the leader of the aristocratic party; in consequence of which his popularity with the democratic party greatly declined. Although a brother-in-law of Tiberius Gracchus, whose sister, Sempronia, he had married, he disclaimed sympathy with his political aims; and when he heard of the murder of his kinsman, quoted his favorite Homer: ‘So perish all who do the like again.’ His attempt B.C. 129 to rescind that portion of the agrarian law of Tiberius Gracchus relating to the lands of the *Socii*, excited furious indignation. When he went home from the senate, he had to be accompanied by a guard. Next morning he was found dead in his bed; the prevailing suspicion being, that he was murdered either by or at the instigation of Papirius Carbo, his most rancorous political enemy. S. was neither a rigid aristocrat nor a flatterer of the people. Inferior in splendor of genius to his adoptive grandfather, he surpassed him in purity of character, in simplicity of patriotism, and in liberality of culture.

SCIRE FACIAS, *sī'rē fā'shī-ās* [L., notify; *lit.*, ‘make to know’]: judicial writ to enforce execution of a judgment, recognizance, patent, or other matter of record; or to vacate, quash, or annul such record. The writ S. F. directs the sheriff to notify the person against whom a judgment stands, or who has given a recognizance, or to whom a patent or a charter has been granted, of intention to enforce such judgment, to obtain execution of such recognizance, or to procure cancellation or forfeiture of letters patent.

SCIROCCO, n., *sī-rōk'kō*, or SCIROC, *sī'rōk*: see SIROCCO

**SCIRPUS**, *sér'pūs*: genus of plants of nat. order *Cyperaceæ*. The English name Club-rush is sometimes given to them. The Common Bulrush (q.v.) is a familiar example; also *S. pungens*, smaller species with three-sided stems, best adapted for use, as in rush-bottomed chairs. There are some species very small in comparison with the Bulrush, as *S. cæspitosus*, called *Deer's Hair* in the Highlands of Scotland, only two or three inches high, affording food to sheep on the moors in spring. The root-stocks of *S. dubius* are eaten by the natives of s. India; as are the roundish tubers of *S. tuberosus*, called *Pi-tsi* by the Chinese, and cultivated by them in tanks and ponds.

**SCIARRHUS**, n. *skir'rūs* [L. *scirros*; Gr. *skirrhos*, a hard swelling—from *skiros*, hard]: in *surg.*, a hard tumor on any part of the body, often terminating in a cancer (see CANCER: TUMORS). **SCIRRHOUS**, a. *-rūs*, hard; knotty, as a gland; proceeding from a scirrhous. **SCIARRHOSITY**, n. *-rōs'i-tī*, morbid hardness. **SCIARRHOMA**, n. *skir-rō'mā* or *sir-rō'mā*, a tumor of a marble-like appearance and consistence.

**SCISSEL**: see under SCISSILE.

**SCISSILE**, a. *sis'il* [F. *scissile*—from L. *scis'silis*, that may easily be split or rent—from *scissus*, cut, rent; *scindērē*, to divide: It. *scissile*]: that may be cut or divided by a sharp instrument. **SCISSIL**, or **SCISEL**, n. *sis'il*, the waste clippings of metals; the slips or plates of metal out of which the blanks for coinage have been cut. **SCISSION**, n. *sizh'ūn* [F.—L.]: the act of cutting or dividing by an edged instrument.

**SCISSORS**, n. *siz'ērz* [OF. *cisoires*; F. *ciseaux*, scissors—probably from L. *secārē*, to cut: OE. *sisoures*]: a well-known cutting instrument consisting of two blades moving on a pivot.

**SCISSURE**, n. *sizh'ūr* [L. *scissūra*, a dividing, a rent—from *scindērē*, to divide: F. *scissure*]: in *anat.*, an opening made by cutting lengthwise.

**SCITAMINEÆ**, *sít-a-mín'ē-ē* or *sí-ta-*, or **ZINGIBERACEÆ**, *zin-jí-bér-ā'sē-ē*: natural order of endogenous plants, herbaceous perennials. There are about 250 known species, all tropical or sub-tropical, among which are the different kinds of Ginger, Galangale, Zedoary, Cardamom, Grains of Paradise, Turmeric, etc. Most of them are notable for aromatic properties, chiefly in their root-stocks or their seeds. The root-stocks of some, particularly when young, contain much starch, which is used as arrow-root.

**SCIURINE**, a. *sí-ū'rīn* [L. *sciūrus*; Gr. *ski'ouros*, a squirrel—from *skia*, a shadow; *oura*, a tail]: having the character of the squirrel tribe. **SCIURIDÆ**, n. plu. *sí-ū'rīdē*, a family of rodents, including flying squirrels, true squirrels, and marmots: see SQUIRREL.

**SCLAV**, or **SCLAVE**—also **SCLAVONIAN**, **SCLAVONIC**; see **SLAV**.

## SCLERENCHYMA—SCLEROSTOMA.

SCLERENCHYMA, n. *sklér-ěng'kí-mă* [Gr. *sklēros*, hard; *engchuma*, what is poured in, tissue]: the calcareous tissue of which a coral is composed; in *bot.*, tissue of thickened and hard cells or vessels.

SCLERETINITE, n.: *sklér-ě'tí-nít* [Gr. *sklēros*, hard; *rhetiné*, resin]: one of the mineral resins, occurring in roundish drops and pellets of a black color, nearly allied in composition to amber.

SCLERIASIS, n. *sklér-i'a-sís* [mod. L.—from Gr. *sklēria*, hardness]: any hard tumor or induration.

SCLERITES, n. plu. *sklér'íts* [Gr. *sklēros*, hard]: the calcareous spicules scattered in the soft tissues of certain actinozoa.

SCLEROBASIC, a. *sklér-ō-bá'zík* [Gr. *sklēros*, hard; *basis*, a foundation, a pedestal]: applied to the coral produced by the outer surface of the integument in certain actinozoa, forming a solid axis invested by the polypites—called the SCLEROBASE, n. *sklér'ō-bá's*.

SCLERODERMous, a. *sklér'ō-dér'mús* [Gr. *sklēros*, hard; *derma*, skin]: hard-skinned; pertaining to the SCLERODERMS, n. plu. *-dérms*, or SCLERODERMI, family of fishes, variously classified, having skins covered with hard scales (see BALISTES). SCLERODERMA, n. *sklér'ō-dér'mú*, a diseased condition in which the skin hardens and indurates. SCLERODER'MIC, a. *-dér'mik*, applied to the corallum deposited between the tissues of certain actinozoa. SCLERODER'MITE, n. *-dér'mít*, the hard skeleton in the crustacea; the corallum deposited within the tissues of certain actinozoa.

SCLEROGEN, n. *sklér'ō-jén* [Gr. *sklēros*, hard; *gennāō*, I produce]: the thickening or woody matter deposited in the cells of plants.

SCLEROGEN'IDÆ: see MAILED CHEEKS.

SCLEROMA, n. *sklér-ō'mă* [Gr. *sklērōma*, an induration—from *sklēros*, hard]: in *med.*, hardness of texture; the hardened part of a body.

SCLEROSIS, n. *sklē-rō'sís* [Gr. *sklēros*, hard]: the hardening of a part by an increase of its connective tissue resulting from inflammatory action. SCLEROT'IC, a. *-rōt'ík*, hard or firm—applied to the external membrane of the eye: N. the outer dense fibrous coat of the eye, forming the white of the eyeball; in *med.*, a substance that hardens parts to which it is applied: also SCLEROTICA, n. *sklē-rōt'i-kă*, in same sense. SCLEROTIC-TUNIC, n. the external of the three tunics of the eye, with the cornea, giving it its peculiar form. It is a dense, fibrous membrane, continuous posteriorly with the optic nerve. SCLEROTOME, *sklér'ō-tóm* [Gr. *tomē*, a cutting]: a segment of the skeleton of the body. SCLEROTOMY, n. *sklē-rōt'ō-mí*, an incision of the sclerotic.

SCLEROSTOMA, *sklē-rōs'tō-má* [Gr. *scleros*, hard; *stoma*, mouth]: genus of the family of *Strongylidae*, belonging to the order of round worms or *Nematoidea* (q.v.). The genus is distinguished by a truncated round head, and large round mouth lined by a horny substance; hence the name. A common species infesting horses, *S. equinum*,

## SCLEROSTOMA.

is 1 in. or more in length, reddish or brown, with both lengthwise and cross lines, the mouth edged with fine-toothed fringes. It occurs abundantly in the intestine, and also in aneurisms of the mesenteric artery, supposed to be caused by irritation of the intestinal worm; but it does not seem to work any serious injury. One species, the *Sclerostoma syngamus*, is the cause of the disease in

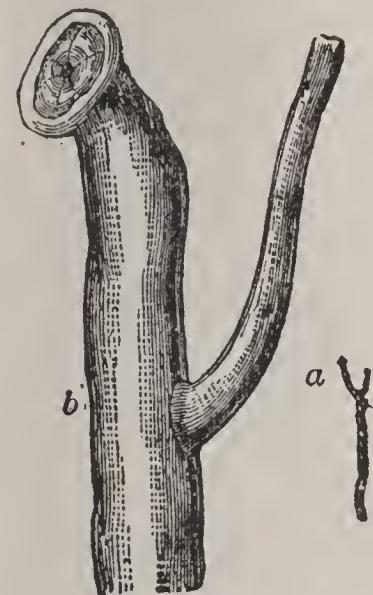


Fig. 1.—*Sclerostoma syngamus.*

a, Male and female—natural size; b, upper part of the same, enlarged (from Cobbold). The male is the smaller worm on the right side of these figures.

ultimately a lasting continuity of the sexes by means of an actual growing together' —one of the most remarkable facts in natural history. Hence the eggs, comparatively large, and many containing fully formed embryos, can escape only by a breaking-up of the body of the parent. 'By whatever mode,' says Dr. Cobbold, 'the young make their *exit* from the shell, it is manifest that, prior to their expulsion, they are sufficiently developed to undertake an active migration. Their next habitation may occur within the bodies of certain insect larvæ, or even in small land mollusks; but I think it more likely that they either enter the substance of vegetable matters, or bury themselves in the soil at a short distance from the surface.'

Considering that this worm infests the trachea of the domestic fowl, the turkey, the pheasant, and the partridge, as well as of many birds of less importance (as the magpie, the black stork, the starling, the swift, etc.), it is important to check its development. With this view, the worms must not only be removed by the means described in the article GAPES, and more fully in Cobbold's *Entozoa*, 90, 91, but they must be *totally destroyed* after their removal. If they be merely killed, and thrown on the

poultry known as the Gapes (q.v.). The entozoon which infests the windpipe of the diseased birds is not a trematoid (or fluke-like) worm, but a round worm, possessing many very singular properties. Dr. Cobbold removed from a chloroformed fowl, with the gapes, seven sclerostomata. 'Six of these parasites were united in pairs, the odd worm being a female, from which the male had in all likelihood been rudely torn during the withdrawal of the forceps' (*Entozoa*, 1864, p. 86). The females thus extracted had an average length of  $\frac{1}{2}$  of an inch; while the males scarcely exceeded  $\frac{1}{3}$  of an inch. In both sexes, the breadth of the body was nearly uniform throughout, being about  $\frac{1}{35}$  of an inch in the female, and only  $\frac{1}{55}$  of an inch in the male. The mouth of the female is furnished with six prominent chitinous lips. According to Siebold, after sexual congress, 'there is ultimately a lasting continuity of the sexes by means of an actual growing together' —one of the most remarkable facts in natural history. Hence the eggs, comparatively large, and many containing fully formed embryos, can escape only by a breaking-up of the body of the parent. 'By whatever mode,' says Dr. Cobbold, 'the young make their *exit* from the shell, it is manifest that, prior to their expulsion, they are sufficiently developed to undertake an active migration. Their next habitation may occur within the bodies of certain insect larvæ, or even in small land mollusks; but I think it more likely that they either enter the substance of vegetable matters, or bury themselves in the soil at a short distance from the surface.'

## SCLEROSTOMA.

ground, the mature eggs will probably remain uninjured; and when decomposition sets in, the young embryos will, sooner or later, escape from the shells, migrate in the soil or elsewhere, and ultimately find their way—how, we cannot tell—into the air-passages of certain birds, in the same manner as their parents did before them.

Dr. Cobbond places the *Dochmias anchyllostomum*, or *Anchyllostoma duodenale* (see STRONGYLIDÆ), in this genus, with the name *Sclerostoma duodenale*. This worm, usually about  $\frac{1}{2}$  of an inch in length, is characterized especially

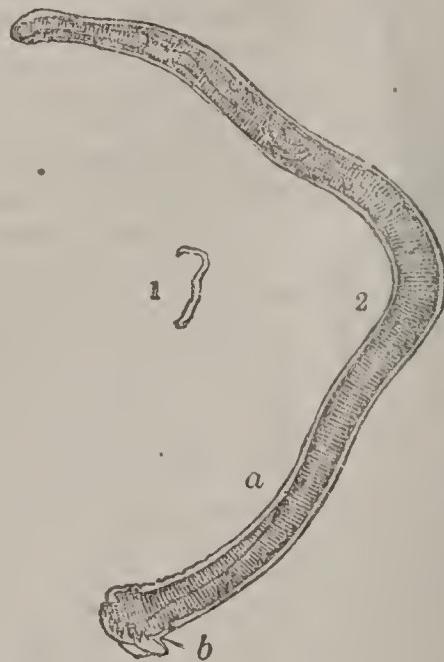


Fig. 2.—*Sclerostoma duodenale*—Male specimen.

1, The natural size; 2, the same magnified, and seen laterally; *a*, generative organ; *b*, region of anus.

by an asymmetrical disposition of four horny, conical, oval papillæ, of unequal size, forming the so-called teeth. The female is larger than the male in about the ratio of 4 to 3, and is the more numerous in the ratio of 3 to 1. This worm was discovered 1838 by Dubini at Milan, and though at first thought rare, is now known to be somewhat frequent throughout n. Italy. It is remarkably abundant in Egypt, where Pruner found it in nearly every corpse, sometimes, in hundreds of specimens, in the jejunum, and to a less extent in the duodenum. Griesinger, in his Memoir *On the Frequency of Entozoa in Egypt, and the Diseases They Occasion* (1854), considers that about one-fourth of the population are constantly suffering from a severe anaemic chlorosis, occasioned solely by the presence of this parasite. See, besides Cobbond's *Entozoa* (1864) and *Parasites* (1879), Küchenmeister, *Die Parasiten des Menschen* (2d ed. 1881); and works by Leuckart, Schneider, and Bastian. ..

## SCLEROTIUM—SCOLD.

**SCLEROTIUM**, *sklē-rō'ti-ūm* [Gr. *sklēros*, hard, in allusion to the texture of the plants]: spurious genus of fungi, now regarded as merely the mycelium of fungi, and these probably of very different kinds, which have been arrested in their development, assuming a peculiar form. This form is that of a fleshy mass, often a ball. Examples are to be found among almost all kinds of decaying vegetable matter, as fruits, esculent roots, etc. When a crop of onions rots off, a S. may generally be found attached to the bulbs in the form of little irregular black masses, or as a multitude of small granules. On the under side of decaying cabbage-leaves, and scattered on the ground beneath the plant to which they belong, may likewise be seen little balls, varying from white or reddish-brown to dark brown and black, in size about equal to cabbage-seeds—whence stories of showers of seeds have sometimes originated. **SCLEROTIA**, n. -*tī-ā*, the fungus disease of India; the lousing disease of sheep.

**SCLEROTOID**, a. *sklēr'ō-toyd* [Gr. *sklēros*, hard; *eidos*, resemblance]: having the form and consistence of *Sclerotium*.

**SCOAT**: see SCOTCH 2.

**SCOBIFORM**, a. *skōb'i-faūrm* [L. *scobis*, powder or dust produced by sawing or rasping—from *scabo*, I scrape; *forma*, form]: in bot., in the form of filings, or like fine sawdust.

**SCOBINA**, n. *skō-bī'nă* [L. *scobīna*, a rasp or file—from *scabo*, I scrape]: in bot., the zigzag rachis of the spikelets of grasses. **SCOBINATE**, a. *skō-bī'nāt*, having the surface rough like a file.

**SCOBS**, n. *skōbz* [L. *scobis*, sawdust—from *scabo*, I scrape]: raspings or turnings of ivory, metals, etc.; sawdust.

**SCOFF**, n. *skōf* [Icel. *skaup*, derision: O.Dut. *schoppen*, to scoff]: an expression of scorn or contempt; derision; mockery; a mark for derision: V. to treat with ridicule, contempt, or mockery—generally with *at*. **SCOFF'ING**, imp.: N. the act of treating with scorn: ADJ. treating with reproachful language. **SCOFFED**, pp. *skōft*. **SCOFF'ER**, n. -*ēr*, one who scoffs. **SCOFF'INGLY**, ad. -*li*.—SYN. of ‘scoff, v.’: to sneer; mock; jeer; gibe.

**SCOKE**, n. *skōk*: in bot., poke-weed, *Phytolacca decandra*: see PHYTOLACCA.

**SCOLD**, n. *skōld* [Dut. *scheldan*, to scold, to revile; *scheldnaem*, a name of abuse: Icel. *skellr*, clang, crash; *skella*, to bang: Sw. *skalla*, to bark like a dog, to scold]: a rude, clamorous, foul-mouthed woman: V. to reprimand with harshness or severity; to rebuke or reprove; to vituperate; to rail at with rude clamor. **SCOLD'ING**, imp.: N. railing language; the act of rebuking or reproving with undue severity; a rating: ADJ. habitually given to the use of harsh or railing language, generally used in reference to women. **SCOLD'ED**, pp. **SCOLD'ER**, n. -*ēr*, one who scolds; **SCOLD'INGLY**, ad. -*li*.

## SCOECIDA—SCOLOPENDRA.

SCOECIDA, n. plu. *skōlē-sī-dă* [Gr. *skōlēx* or *skōlēka*, a worm]: a heterogeneous division of the Annuloida now abandoned.

SCOECITE, n. *skō-lē'sit* [Gr. *skōlēx*, a worm—in reference to the mineral's behavior before the blowpipe]: a mineral found in whitish fibrous tufts in trap-rock and basalt.

SCOLEX, n. *skō'lēks* [Gr. *skōlēx*, a worm]: embryonic stage of a tape-worm; formerly called a cystic worm: see TAPE-WORM: CESTOID WORMS.

SCOLIOSIS, n. *skōl-i-ō'sis* [Gr.—from *skoliōs*, crooked]: in med., crookedness; distortion of the vertebral column to one side.

SCOLITHUS, n. *skō-li'thus*, or SCOLITES, n. plu. *skō'-līts* [Gr. *skoliōs*, crooked, tortuous; *lithos*, a stone]: in geol., terms applied to those tortuous tube-like markings which occur in certain sandstones, and which appear to have been worm-burrows.

SCOLLOP, *skōl'lōp*: see SCALLOP.

SCOLOPACIDÆ, *skōl-ō-păs'i-dē*: family of birds of the order *Grallæ*, having a long, feeble, soft, and somewhat flexible bill remarkably furnished with nerves, particularly toward the tip, so as to be extremely sensitive, while many of them have also a peculiar muscle, enabling them to separate the points of the mandibles instantly when their prey is felt. They are thus admirably fitted for seeking their food—generally worms, slugs, etc.—in mud, soft earth, or wet sand. The membrane of the tip of the bill is almost pulpy in many of them. The species are numerous, and very widely distributed, generally inhabitants of swampy or very moist places. A division is made by some authors into 5 sub-families: *Scolopacinae*, snipes and wood-cocks; *Tringinae*, sandpipers; *Totaninae*, long-shanks, tattlers, plovers; *Recurvirostrinae*, avocets; *Limosinae*, godwits.

SCOLOPAX, n. *skōl'o-păks* [L.—from Gr. *skolopax*, a snipe, a woodcock]: typical genus of the family *Scolopacidae*, a cosmopolitan family of *Grallæ*, comprising the snipes, sandpipers, curlews, and allied genera.

SCOLOPENDRA, n. *skōlō-pěn'dră* [L. *scolopen'dra*; Gr. *skolopen'dra*, a sort of multiped]: a genus of centipedes (see CENTIPEDE). SCOLOPEN'DRIUM, n. *-drī-ūm*, a genus of ferns; the typical species is *S. vulgārē*, the common Hart's-tongue (q.v.) fern.

# SCOLYTUS—SCOMBRIDÆ.

**SCOLYTUS**, *skö'l'i-tüs*: genus of coleopterous insects of family *Xylóphagi*: see BARK BEETLE. One species, *S. destructor*, a beetle about one-sixth of an inch in length, of dull color, with short antennæ, thickened at the extremity, has destroyed great numbers of fine elms in the neighbor-



**Scolytus destructor** and Section of Wood, showing the burrows of the larvæ.

hood of London and elsewhere in England. The female insect burrows in the wood, and lays a row of eggs; the larvæ, as soon as hatched, begin to feed on the wood, and eat their way in long tunnels, diverging on all sides from the original one.

**SCOMBERESOCIDÆ**, *sköm-bé-rë-sö's'i-dë*: family of fishes, of order *Physostomi*. The Flying-fish (*Exocetus*) belongs to this family; also the Garfish (not the Amer. gar-pikes) and the Saury Pike. There is a series of keeled scales along each side of the belly; the dorsal fin is opposite the anal, on the caudal portion of the spinal column; the margin of the upper jaw formed by the intermaxillaries mesially and by the maxillaries laterally; the lower pharyngeals united into a single bone; and the stomach not distinct from the straight intestine, which has no appendages. The sub-families are the *Beloninæ*, garfish; *Scomberesocinæ*, mackerel-pikes, saury pikes; *Hemiramphinæ*, the half-beaks; and *Exocetinæ*, flying-fish.

**SCOMBRIDÆ**, *sköm'bri-dë*, or **SCOMBERIDÆ**, *sköm-bér-i-dë*: large family of acanthopterous fishes containing many species highly esteemed as food, and some of great value on account of the abundance in which they are caught. Some attain large size. They have a smooth body, covered generally with small scales, and often very beautifully colored; the tail-fin generally large, and the tail very muscular and powerful. The gill-covers have no armature. The sides of the tail are often keeled and armed with sharp-keeled scales. The front spines of the anal fin are generally detached, and sometimes those of the first dorsal fin. The second dorsal fin is often represented by numerous finlets, as in the Mackerel (q.v.). To the same tribe with the mackerel, characterized by finlets and by lack of armature on the lateral line, belong the Bonito (q.v.), the Tunny (q.v.), the Albacore (see TUNNY), and the Seirfish (q.v.). The importance of the Mackerel fishery is well known, also that of the Tunny fishery of the Mediterranean. The Sword-fish (q.v.) is an example of another group, com-

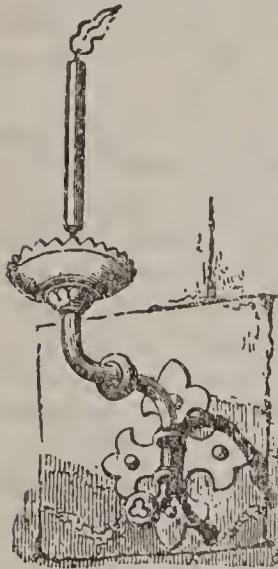
## SCOMBROIDES—SCONE.

prising only a few species, having no finlets, and remarkably characterized by the dagger-like prolongation of the muzzle. The Pilot-fish (q.v.) belongs to a tribe having the first dorsal represented by isolated spines. There are other tribes or groups, some having the lateral line cuirassed, some not having this armature, and not having finlets nor detached spines. The Dory (q.v.) and allied genera, often regarded as forming a tribe of S., have been constituted into a distinct family, *Zeidæ*.—The S. all are marine. They are more numerous in warm than in cold climates, though some are found in far northern seas, of which the mackerel is the most important instance.

**SCOMBROIDES**, *skōm-broy'dez*, or **SOM'BEROIDS**, n. pl. [L. *scomber*; Gr. *skombros*, species of tunny, mackerel, and Gr. *eidos*, resemblance]: genus of carangoid fishes; or family of fishes of which the common mackerel is taken as the type. **SOM'BROID**, or **SOM'BEROID**, a. -oyd, pertaining to the Scombroides.—See **SOMBRIIDÆ**.

**SCONCE**, n. *skōns* [O.Dut. *schantse*, a rampart made of

trees and branches: Ger. *schanze*, a sconce, a fort; *schanzen*, to make a fence, to fortify—probably derived from OF. *esconser*, to hide, to conceal—from L. *absconsus*, concealed, hid; *abscondēre*, to conceal (see **ABSCOND**)]: in *OE.*, small fort, detached from the main work, as for defense of a river or a pass: that which covers or resembles a cover; a screen: candlestick affixed to a wall, on a bracket; socket of a candlestick with a brim, in which the candle is inserted [OF. *esconse*, a dark lantern]: in *arch.*, a branch to support a candlestick; a helmet; the head or top of a thing: the head, in contempt. **SCONCE**, or **ENSCONCE**, v. to post one's self behind a screen of some kind.



Sconce.

**SCONCHEON**, n. *skōn'shon* [etym. doubtful]: in *arch.*, the portion of the

side of an aperture from the back of the jamb or reveal to the interior of the wall.

**SCONE**, *skōn*: parish in Perthshire, Scotland; on the left bank of the Tay, about two m. from Perth; famous as the seat of one of the most venerable of Scottish abbeys. S. is mentioned first in the beginning of the 10th c., when a council was held there in the 6th year of the reign of King Constantine; at which time it is styled, by the Chronicle which records the fact, *regalis civitas*, the royal city. A monastery was built at S. probably about the same period, and there was located the famous *scone-stone* on which the kings of the Scots were inaugurated, and which was carried by Edward I. of England to Westminster Abbey (see **CORONATION**). In the place of the ancient monastery, an abbey of Canons Regular was founded by Alexander I., 1115, and there the sovereigns continued to

## SCONE—SCOPAS.

be inaugurated and crowned. Alexander III., last of the ancient race of kings, and Robert Bruce, founder of the new dynasty, were crowned at S.; but after the accession of the House of Stuart, the coronations sometimes took place in other churches. In the summer of 1559, when Perth was held by the Lords of the Congregation, a disorderly multitude of their adherents assaulted the monastery of S., set it on fire, and left it a blackened ruin. The last coronation which was celebrated at S. was that of Charles II., 1651, Jan. 1. The abbey-church had never been restored, and the solemnity took place in the parish kirk, the crown being placed on the king's head by the Marquis of Argyle. 1716, Jan., the Jacobite leaders endeavored to encourage their followers by fixing a day for the coronation of the Chevalier at S., but the design was abandoned. In the reign of James VI., the abbey of S. was erected into a temporal lordship in favor of Sir David Murray, afterward Viscount of Stormont. The great chief-justice, the Earl of Mansfield, younger son of the fifth Viscount Stormont, was born at S.; and the Scottish peerage is now merged in the Brit. earldom of Mansfield. The Viscounts of Stormont had a residence near the site of the abbey, known as the Palace of Scone. The present palace was erected in the beginning of the 19th c. Pop. 1,483.

**SCONE**, or **SCON**, n. *skōn* [comp. Gael. *sgonn*, a block of wood, a lump, a cake]: in *Scot.*, a round or triangular flat piece of home-baked bread, prepared from wheaten or barley flour mixed with butter-milk and bicarbonate of soda—usually baked on a griddle.

**SCOOP**, n. *skōp* [O. Dut. *schoepe*, a shovel; *schoepen*, to draw water: Dan. *skuffe*, a shovel: Ger. *schüppen*, a scoop, a shovel; *schöpfen*, to draw water]: a hollow shovel or ladle; a hollow dish with a long handle for dipping among liquors; a surgical instrument; a coal-scuttle; in *OE.*, swoop: V. to hollow out; to excavate; to remove with a scoop. **SCOOP'ING**, imp. **SCOOPED**, pp. *skōpt*. **SCOOP'ER**, n. -ēr, one who scoops; a tool used by engravers; the avocet. **SCOOP-NET**, a net so formed as to sweep the bed of a river.

**SCOOT**, v. *skōt* [prob. from *cout*]: *colloq.*, to run hastily; to scamper away.

**SCOPAS**, *skō'pas*: Greek sculptor and architect, of the later Attic school, whose head was Praxiteles (q.v.); b. in the island of Paros, and lived during the first half of B.C. 4th c. Nothing is known of his life or the date of his death. His principal architectural works are: 'The Temple of Athena Alla at Tegea,' the first in size and beauty in the Peloponnesus; 'The (second) Temple of Diana at Ephesus' (though Deinocrates also and even more generally is named as the architect); some of the bas-reliefs in the famous Mausoleum erected by Artemisia, Queen of Caria, in memory of her husband (and now in the Brit. Museum). S.'s sculptures, by which we mean his single statues and groups illustrating the divinities of Greek mythology, were very numerous, and mostly in marble: they embrace

## SCOPE—SCORE.

subjects from the myths of Aphrodite (Venus), Dionysus (Bacchus), Apollo, Artemis (Diana), etc. But perhaps the noblest, and certainly the most famous sculpture by S., was that which latterly stood in the Flaminian Circens at Rome, and represented Achilles conducted to the island of Leuce by the divinities of the sea. It included statues of Neptune, Thetis, the Nereids, Tritons, and a variety of sea-monsters, and, according to Pliny, the whole was so beautiful that it alone would have immortalized Scopas.

**SCOPE**, n. *skōp* [Gr. *skopos*, a watcher, a mark or aim—from Gr. *skeptomai*, I view or survey: It. *scopo*, aim, scope]: space; room; the limit of intellectual view; the end or ultimate object toward which the mind is directed; the intention; the aim or drift; unrestricted liberty; in *OE.*, act of riot; sally.—**SYN.**: aim; intention; drift; mark; end; room; space; liberty; freedom; license; extent; sweep.

**SCOPEL'IDÆ**: see **SALMONIDÆ**.

**SCOPIFEROUS**, a. *skō-pīf'ēr-ūs* [L. *scopa*, a brush; *fero*, I bear]: furnished with one or more dense brushes of hair.

**SCOPIFORM**, a. *skōp'i-fāwrm* [L. *scopæ*, a broom or besom made of twigs; *forma*, shape]: having the form of a broom or besom. **SCOP'IPED**, n. *-pēd* [L. *pes* or *pedem*, a foot]: one of a tribe of insects that have a brush of hairs on the hind feet.

**SCORBUTIC**, a. *skōr-bū'tik*, or **SCORBU'TICAL**, a. *tī-kāl* [mid. L. *scorbūtus*, the scurvy: Low Ger. *schorbock*; Ger. *scharbock*, the scurvy: F. *scorbutique*, scorbutic]: affected with the scurvy, or subject to it; resembling the scurvy. **SCORBU'TICALLY**, ad. *-lī*. **SCORBUTUS**, n. *skōr-bū'tūs*, a disease characterized by extreme debility, swollen gums, and purple spots on the skin, induced by privation and malnutrition, often from the want of vegetables; scurvy.

**SCORCH**, v. *skōrch* [OF. *escorcher*—from mid. L. *excorticārē*, to flay—from L. *ex*, off; *cortex* or *corticem*, bark, rind: comp. Low Ger. *schroggen*; Dut. *schroken*, to scorch, to singe]: to burn superficially; to affect painfully with heat; to be parched or dried up; to singe. **SCORCH'ING**, imp.: ADJ. parching; burning. **SCORCHED**, pp. *skōrcht*. **SCORCH'INGLY**, ad. *-lī*.

**SCORDIUM**, n. *skōr'dī-ūm* [Gr. *skordion*, a plant that smells like garlic]: a plant, the water-germander; the *Teucrium scordium*, ord. *Labiātæ*.

**SCORE**, n. *skōr* [Icel. *skora*, a score: AS. *sceran*; Dut. *scheren*, to shear or cut: Dan. *skure*; Dut. *schore*, a notch or score]: a scratch, notch, or mark used to indicate a number; a line drawn; an account or reckoning kept by marking in notches or lines; a tally-mark; the number 20, as being marked off by a notch; an account run up; reason or motive; the complete transcript of a musical composition (see below): in *OE.*, debt imputed: V. to scratch or mark as with chalk to indicate a number or numbers; to mark by notches or lines; to set down, as a debt. **SCOR'ING**, imp. **SCORED**, pp. *skōrd*. **IN SCORE**, in music, all the parts of a composition arranged to meet the eye at once—so called

## SCORE—SCORESBY.

from the bar drawn through all its parts in its early use (see SCORE, below). To QUIT SCORES, to settle or balance accounts; to give satisfaction. SCOR'ER, n. -ér, an instrument for marking numbers on timber trees. LONG SCORE, a heavy debt or reckoning. SHORT SCORE, a light debt, or one easily discharged.—SYN. of 'score, n.': notch; line; twenty; account; tally; reason; motive; sake; account; incision.

SCORE, in Music: composition for several voices or instruments, or for an orchestra, so written that each part has a separate staff for itself, these staves being placed over each other, bar corresponding to bar. It is so called because the bars are *scored* or drawn through all the parts from top to bottom. Occasionally, where there is deficiency of staves for all the parts, or where any of the parts have so little to do that it is not necessary to assign them a separate staff, parts related to or connected with each other, e.g., two flutes, two clarionets, or three trombones, may be written together on the same staff. The arrangement or the distribution of the parts in a S. is of some importance. As a general rule, the highest part should be uppermost, then the next lower, and gradually descending. All the parts of a chorus should be placed together. Perfection in reading S. is not very easily attained, but is necessary for a thoroughly trained musician. The student of music who can read or play the great master works from the S. will become far more intimately acquainted with them than he could by mere pianoforte arrangements, and will come to understand the means by which their composers have produced their wonderful effects. The use of so large a number of clefs, and the practice which has obtained of writing parts for particular instruments in other keys, have added greatly to the difficulty of studying the S. Among various suggestions for simplifying the S., one, advocated in Brown's *Elements of Musical Science*, consists in the use of but one clef, the bass or F clef; the other parts being distinguished from the bass by short bars attached to the clef, which direct the performer to take the notes one, two, or three octaves higher.

SCORESBY, skōrz'bī, WILLIAM, D.D.: renowned English Arctic explorer and savant: 1789, Oct. 5—1857, Mar. 21; b. Whitby, Yorkshire; son of William S. (1760–1829), who was the most distinguished Arctic whale fisher of his time. Young S. began a seafaring life at the age of 11; and in his 21st year succeeded his father as commander of the *Resolution*, and in the business of whale-fishing. After 17 voyages to the Spitzbergen and Greenland whaling-grounds, he published the results of his observations of the countries within the Arctic Circle in *An Account of the Arctic Regions* (2 vols. 1820), a work which added largely to the sciences of meteorology, hydrography, and nat. history. In 1822 he explored the e. coast of Greenland, a tract before unknown, and published at Edinburgh, 1823, an account of this expedition. In 1824 he was elected a fellow of the Royal Soc. of London, and later was chosen correspondant of the French Institute. Returning from an

## SCORIA—SCORN.

expedition, 1822, and finding his wife dead, he proceeded to give effect to a desire which he had long had, of becoming an authorized teacher of religion. He entered at Queen's College, Cambridge; graduated B.D. 1834, receiving 1839 the degree D.D., and labored faithfully at Liverpool and afterward at Bradford, till failing health compelled him to retire to Torquay. He continued his physical researches, giving special attention to terrestrial magnetism, especially in its relation to navigation; and published the results, many of which were of great value and interest, in the *Philosophical Transactions*, the *Transactions of the Royal Soc. of Edinburgh*, the *Reports of the British Assoc.*, and subsequently in improved form in his *Magnetical Investigations* (Lond. 2 vols. 1839–52). For better prosecution of these researches, he made a voyage to the United States 1847, and to Australia 1853, returning 1856, enfeebled in health by his arduous labors. He died at Torquay. Besides his work on *Zoistic Magnetism*, which described a series of researches undertaken to elicit some natural connection between magnetic and mesmeric agencies, he published various religious works. He interested himself much in social questions.—S. was a man of simple, cheerful piety, and of frank and amiable disposition. See *Life*, by his nephew, Dr. R. E. Scoresby-Jackson (Lond. 1861).

**SCORIA**, n. *skō'ri-ă*, *Sco'RIÆ*, n. plu. *-ri-ē* [L. *scōria*; Gr. *skōria*, dross, slag—from Gr. *skōr*, dung: It. *scoria*: F. *scorie*]: the scum, dross, or slag left from melted metals or ores; rejected matter: in *geol.*, the accumulations of dust, ashes, cinders, and loose fragments of rocks, discharged from active volcanoes; more or less porous from expansion of the gases contained in the melted material: see VOLCANIC ROCKS. *Sco'RIA'CEOUS*, a. *-ă'shūs*, pertaining to or resembling dross; drossy; in *geol.*, applied to loose cindery débris having the aspect or character of scoriae. *Sco'RIFORM*, a. *-fawrm* [L. *forma*, shape]: dross-like; cindery; in *geol.*, applied to loose cindery accumulations which seem to owe their origin to igneous action.

**SCORIFY**, v. *skō'ri-fi* [F. *scorifier*, to reduce to dross—from L. *scōria*, dross; *faciō*, I make]: to reduce to scoria or dross. *Sco'RIFYING*, imp. *Sco'RIFIED*, pp. *-fid*: ADJ. reduced to scoriae or cindery dross. *Sco'RIFICATION*, n. *-fi-kā'shūn*, the operation of reducing a metal wholly or partially to scoria or dross. *SCORIFIER*, n. *skō'rī-fī-ér*, in *assaying*, a saucer of refractory clay for containing a charge of lead and the metal to be assayed.

**SCORN**, n. *skōrn* [OF. *escarn*; Sp. *escarnio*; It. *scherno*, derision, mockery: It. *schernire*; OF. *escarnir*, to mock: Icel. *skarn*, ordure, dirt: AS. *scearn*, dung—the primary meaning seeming to be, to treat one as dirt]: extreme contempt; the expression of disdain or contempt in look, gesture, or words, called forth by a sense of the meanness, baseness, or utter insignificance of the object of it, and by a belief in one's own superiority: V. to think or treat as unworthy or contemptible; to hold in extreme contempt; to despise or contemn; in *OE.*, to neglect; to disregard.

## SCORPÆNA—SCORPION.

SCORN'ING, imp. : N. the act of contemning or despising ; the act of treating with contempt or disdain. SCORNED, pp. *skörnd*. SCORNER, n. *skörn'ér*, one who scorns ; one who scoffs at religion. SCORN'FUL, a. *-fūl*, contemptuous ; disdainful. SCORN'FULLY, ad. *-lī*, contemptuously ; insolently. SCORN'FULNESS, n. *-nēs*, the quality of being scornful. To LAUGH TO SCORN, to make a mock of ; to deride. To THINK SCORN, in *O.E.*, to hold unworthy of regard ; to disdain.—SYN. of ‘scorn, v.’ : to despise ; slight ; revile ; contemn ; vilify ; neglect ; disregard ; disdain ;—of ‘scorn, n.’ : derision ; contumely ; despite ; dishonor ; contempt, reproach ; insolence.

SCORPÆNA, *skawr-pē'na* : genus of fishes, of family *Mailed Cheeks* (q.v.). The head is large and compressed, more or less armed with spines or tubercles. The body is of somewhat perch-like form. Some of the *Scorpænae* are remarkable for ugliness ; some exhibit very fine colors. They are numerous in the Mediterranean, and widely distributed in the seas of warm climates. They frequent rocky shores in shoals, and feed on crustaceans, small fishes, etc. They are popularly called *Hog-fish* and *Scorpion-fish*. The flesh is dry and tasteless, but the liver yields a useful oil.—The Bergylt (q.v.) belongs to a nearly allied genus.

SCORPIO, n. *skör'piō* [L. *scorpiō* ; Gr. *skorpiōn*, a scorpion] : the Scorpion, a sign of the zodiac : in *astrol.*, the ‘accursed constellation,’ the ‘false sign,’ ominous of war, discord, and woe. SCOR'PION, n. *-ōn*, animal shaped like a lobster, and having a very venomous sting in its tail (see below : in *Scrip.*, a sort of scourge with leaden pellets and knots on its cords. SCORPION-FLY, an insect having a tail resembling that of the scorpion. SCORPION-GRASS, the *Myosotis*, ord. *Boraginacēae*. SCORPION'S-TAIL, a plant having trailing herbaceous stalks, and producing a pod resembling a caterpillar ; the *Scorpiurus sulcatus*, ord. *Legumi-nosae*.

SCORPIOID, a. *skör'piō-oyd*, or SCOR'PIOID'AL, a. *-oyd'-äl* [Gr. *skorpiōn*, a scorpion ; *eidos*, resemblance] : in *bot.*, rolled in a circinate manner, or resembling the tail of a scorpion ; having a peculiar twisted cymose inflorescence, as in *Boraginacēae*. SCORPIOID CYME, flowers arranged alternately, or in a double row, along one side of a false axis, the bracts forming a double row on the other side.

SCORPION, *skawr-pi-on* (*Scorpio*) : genus of *Arachnida*, of order *Pulmonaria*, formerly including the whole family *Scorpionidæ*, to all of which the popular name is still extended. Scorpions are natives of warm climates, both in the e. and in the w. hemispheres. The species are numerous. They have the body elongated, and no marked division between the thorax and abdomen. Six segments of the abdomen are broad ; but the last six are narrow, forming a tail ; and the last segment is modified into a curved and sharp sting, having two pores on its lower side, from which the venom flows, supplied by two poison glands in the base of the segment. The palpi are modified into pincers or claws like those of the lobster, by means of which

## SCORSE.

prey is seized. There are four spiracles or breathing-pores on each side of the abdomen. There are two remarkable comb-like appendages on the under surface of the thorax, of unknown use. The number of eyes is various; in the restricted genus *Scorpio*, of which the COMMON S. (*S. Europæus*) of s. Europe is an example, there are only six; but in



Scorpion (*Scorpio Europæus*).

some of the genera eight and twelve. Scorpions feed on beetles and other insects; and after seizing them, pierce them with the sting before eating them. They also eat the eggs of spiders, etc. They lurk under stones and in holes and crevices, but come forth to seek their prey, running with great activity. In running, they carry the tail curled over the back. When alarmed or irritated, they show great fierceness, evidently aware of the power of their sting, and moving it in all directions, as if threatening an adversary. They are universally dreaded, being apt to enter houses and beds, hiding themselves under pillows, in shoes, boots, etc.; so that accidents from their sting are very frequent in countries where they abound. The sting is seldom fatal; but even that of the Common European S. is very painful; and that of some of the largest species—six inches long—is much more severe, attended with much nausea and constitutional derangement; and its evil effects do not soon cease. It is of use to press a large key or other tube on the wound, to force out part of the poison. The best remedy is ammonia, internally administered, also applied externally.

The female S. shows great regard for her young, which she carries for some time clinging in great numbers to her back, limbs, and tail.

Thirteen species in the s.w. United States have been described, e.g., *S. Allenii* and other species in s. Cal., *Buthus spinigerus* in Texas, and *B. Carolinianus* in all the southern states.

SCORSE, or SCOURSE, v. *skörs* [OF. *couratier*, *couracier*, a broker]: in *OE.*, to exchange; to choose; to drive; to deal for the purchase of horses: N. change; exchange: SCORSING, imp. SCORSED, pp. *skörst*.

## SCORZONERA—SCOT.

**SCORZONERA**, n. *skör'zō-nē'ră* [Sp. *escorzonera*, viper's grass; *escorzon*, a toad: It. *scorzoneră*]: genus of plants of nat. order *Compositæ*, sub-order *Cichoraceæ*, having yellow or, rarely, rose-colored flowers. The species are numerous, mostly natives of s. Europe and the East: some have been popularly supposed to be a remedy for the bites of vipers. The Common S., *S. Hispanica*, native of s. Europe, has long been cultivated for its esculent roots. The root is black externally, white within, about the thickness of a man's finger, long, and tapering very gradually, whence the name *Viper's Grass*, sometimes given to the plant, the root being supposed to resemble a viper. It contains a white milky juice, and has a mild, sweetish, mucilaginous taste: it is pleasant food when boiled; the outer rind being first scraped off, and the root steeped in water, to abstract part of its bitterness. The leaves are an inferior substitute for mulberry leaves in feeding silk-worms.—Other species of S. are used similarly.

**SCOT**, n. *sköt* [AS. *Scotias*, the Scotch, the Irish: L. *Scoti*, the Scots]: a native of Scotland. **SCOTCH**, n. *sköch*, the inhabitants of Scotland; their language: ADJ. pertaining to Scotland, its language, or its people. **SCOTCH'MAN**, n. a native of Scotland. **Scots**, a. *sköts*, same as *Scotch*. **SCOTS'MAN**, n. same as *Scotchman*. **SCOTTICISM**, n. *sköt'i-sizm*, an idiom or expression peculiar to the natives of Scotland. **SCOT'TISH**, a. *-ish*, pertaining to Scotland, its language, or its inhabitants. **SCOTCH GUARDS IN FRANCE** (see FRENCH SCOTS GUARD). **SCOTCH MIST**, a dense, mist-like, fine rain. **SCOTCH THISTLE**, a variety of thistle—so called from its being the national emblem of Scotland; the *Onopor'don acan thium*, ord. *Compositæ*, sub-ord. *Cynaroceph'ålæ*. **SCOTTICE**, ad. *sköt'i-sē* [L.]: after the Scotch manner or fashion; in the Scotch language.

**SCOT**, *sköt*, **MICHAEL**: philosopher and 'magician.' Of the time and place of his birth nothing is certainly known; probably he was native of Scotland and lived in the 13th c. Oxford, Paris, Toledo, claim him as *alumnus* of their schools. He knew of Arabic enough to read Avicenna and Averroes in the originals, and Aristotle in Arabic versions: many of these writings he translated into Latin. His own writings treat of astrology, alchemy, and occult arts; and were highly esteemed by scholars of his own and later generations. His works *Super Auctorem Spheræ*; *De Sole et Luna*; *Theatrum Chemicum*; *De Chiromantia*; *De Physiognomia et de Hominis Procreatione*, were repeatedly printed; the rest of his writings are in MSS. S. was reputed a great magician, having demons at his command to transport him in an instant across seas, to fetch from the ends of the earth meat and drink for the good cheer of his friends, etc.

## SCOT—SCOTCH.

**SCOT**, REGINALD: writer who has acquired honorable reputation as an early disbeliever in the reality of witchcraft: about 1538-99; b. near Smeeth, Kent, England; son of Richard S., who was third son of Sir John Scot of Scotalhall. He studied at Oxford; and seems to have applied himself through life to learned pursuits. His remarkable work, *The Discoverie of Witchcraft* (1584), is designed to demonstrate the absurdity of the prevalent belief on the subject. His thesis is: ‘There will be found among our *Witches* only *two sorts*; the *one sort* being such by imputation, as so thought of by others (and these are abused and not abusers), the *other* by *acceptation*, as being *willing* so to be *accounted*, and these be mere *Coseners*.’ His book is full of learning, furnishing a great mass of valuable details on the whole subject; and is marked by sound sense and humane feeling, qualities that naturally excited the antipathy of King James I., who wrote his *Daemonology* in reply. But the ‘British Solomon’ only reflected the general superstition of his age, and S. had to run the gantlet of a series of ‘Answers’ and ‘Refutations’ by a number of eminent men. His book was ordered to be burned by the common hangman, and copies of it are now extremely rare. Besides *The Discoverie of Witchcraft*, S. wrote *A Perfect Plat-form of a Hop Garden*, which gave origin to hop culture in England.

**SCOT**, n. *sköt*, or **SHOT**, n. *shöt* [AS. *sceotan*, to shoot, to throw down in payment; *scot*, payment: OF. *escot*, payment of one’s own share of a common expense: It. *scotto*, the reckoning at an inn: Icel. *skot*, a shot, contribution: Low Ger. *scheten*, to cast; *schott*, contribution: comp. Gael. *sgot*, part, share]: the reckoning; the bill; an assessed tax laid on according to ability to pay. **SCOT AND LOT**, *lit.*, contribution and share; in English boroughs, all parochial assessments according to ability: formerly, in many boroughs, the right of voting was restricted to scot and lot payers. **SCOT-FREE**, without payment; unhurt: see also **SCAT**.

**SCOTCH**, v. *sköch* [probably only a corruption of *scutch*, to bruise flax: Norw. *skoka*, *skuku*, a swingle for beating flax]: to lash; to scutch; to cut or wound slightly: N. a slight cut or shallow incision; a line drawn on the ground, as in *hop-scotch*. **SCOTCHING**, imp. **SCOTCHED**, pp. *sköcht*: ADJ. cut with shallow incisions. **SCOTCH** or **SCOTCHED COLLOPS**, beef cut into small pieces; scored or partially cut collops.

**SCOTCH**, v. *sköch* [Wal. *ascot*, anything used to support an unsteady object; *ascoter*, to prop: F. *accoter*, to under-prop: Lang. *acouta*, to support]: to shoulder up; to prop; to stop, as a wheel, by putting a piece of stone or wood under it: N. a drag or break applied to the wheel of a carriage in descending a declivity. **SCOTCH'ING**, imp. **SCOTCHED**, pp. *sköcht*. Also spelled **SCOAT** and **SCOELE**.

## SCOTCH-IRISH.

SCOTCH-IRISH: appellation (in America) of descendants of the Prot. British settlers colonized in the province of Ulster, Ireland, 1613, in the reign of James I. The colonists were both English and Scotch. In Ireland their descendants, when they wish to discriminate between themselves and the 'mere Irish,' take the more appropriate designation 'West Britons.' After the accession of William and Mary 1688, to the Eng. throne, the Eng. parliament enacted stringent laws for repressing manufactures in Ireland, and the result was that, according to Lord Fitzwilliam, 100,000 operatives were driven out of Ireland. A contemporary account estimates that '3,000 males left Ulster yearly for the [American] colonies.' These Ulster exiles were almost, or quite, all Prot.—mostly Presb. in faith; and of the Eng. and Scotch stock imported by James I. One of their earliest settlements in N. America was made in Penn. 1699. The names Derry, Donegal, Tyrone, Coleraine, given to townships in Penn., are monuments of this immigration. This Ulster emigration flowed also into Va., the Carolinas, and New England—e.g., Derry and Londonderry, N. H.; and its volume continued to be very large. Thus the arrivals of aliens in the port of Philadelphia for the year ended 1729, Dec., are set down as follows: English and Welsh 267; Scotch 43; Palatines 343; Irish (doubtless mostly from Ulster) 5,655. Thus these immigrants and their descendants constituted a large element of the population of the United States in the time of the revolution and until the flood-period of immigration hither: and their weight in the body politic and social has been proportionate to their numerical strength.

## SCOTCH STATUTES—SCOTIST.

SCOTCH STATUTES generally, the ancient acts of parliament from the reign of James I. of Scotland to the Union of England and Scotland: also many statutes since that date applicable exclusively to Scotland. While in Scotland the old statutes lost their force by desuetude, in England a statute, however ancient and however neglected, continues law until it is expressly, or by strong implication, repealed by subsequent statute.

SCOTE: see SCOTCH 2.

SCOTER, n. *skō'tér* (*Œdemia*): genus of the oceanic section of ducks, of the sub-family *Fuligulinæ*, having a short broad bill with elevated knob at the base of the upper mandible, tip much flattened and terminated by a large flat nail, mandibles laminated with broad strong widely separated plates; wings of moderate length; tail short and acute; feet very large; plumage generally very dark. Their food is chiefly marine shell-fish, crustaceans, etc., which they obtain by diving.—The



Velvet Scoter (*Œdemia fusca*).

COMMON S., or BLACK S. (*Œ. nigra*), is about the size of the common duck. The whole plumage of the male is deep black; the bill and legs are black, except a line of orange along the ridge of the upper mandible. The female is dark brown. The flesh is oily, and has a fishy taste; but, being therefore permitted to Rom. Catholics during Lent, is in great request in some countries.—The similar Amer. species is *Œ. Americana*; and the name is applied to *Œ. fusca*, the velvet or white-winged S., and *Œ. perspicillata*, the surf S., also called sea-coots.

SCOTIA, n. *skō'shī-ă*: a poetic name for *Scotland*.

SCOTIA, n. *skō'tī-ă* [Gr. *skōtīa*, darkness]: the hollow molding in the base of a column—so called from the shadow formed by it: see MOLDINGS.

SCOTIST, n. *skō'tīst*: follower of Duns *Scotus*, celebrated scholastic philosopher of the 14th c.: see DUNS SCOTUS.

## SCOTLAND.

SCOTLAND, *sköt'land*: northern section of the island of Great Britain; member of the United Kingdom of Great Britain and Ireland.

For the *Geography*, see GREAT BRITAIN.

*History.*—The early inhabitants of the country were Picts (q.v.). The original Scotia or S. was Ireland; and the Scotti or Scots, at their first appearance in authentic history, were the people of Ireland. The Scots were a Celtic race, and their original seat in n. Britain was in Argyle, which they acquired by colonization or conquest, before the end of the 5th c., and whence they spread along the w. coast from the Firth of Clyde to the modern Ross. The name S. seems first to have been given to the united kingdom of the Picts and Scots in the 10th c. It was then sometimes styled, by way of distinction, *Scotia Nova* (New Scotland), and it was a considerable time afterward before the name S. was applied to it to the exclusion of Ireland. This interchange of names was a fruitful source of dispute between Irish and Scottish writers in the 16th and following centuries, and even now the controversy is hardly at an end.

The first prince of the British Scots mentioned in authentic annals was Fergus, son of Erc, who crossed over to Britain about 503. His nation had been converted to Christianity by St. Patrick, and Fergus himself is said to have received the blessing of the saint in his early years.—His great-grandson, Conal, was king of the British Scots when Columba (q.v.) began the conversion of the northern Picts; and by that prince, according to the best authorities, Iona was given for the use of the mission.—Conal was succeeded by his nephew, Aidan, who was inaugurated as sovereign by St. Columba in the island of Iona—a ceremony which Scottish writers, misled by the great French antiquary, Martène, long believed to be the first example of the benediction of kings. Aidan was a powerful prince, and more than once successfully invaded the English border; but toward the end of his reign he received a severe defeat from the Northumbrian sovereign Ethelfrid at the battle of Degesestan.

The history of Aidan's successors is obscure and uninteresting, except to special students. Their kingdom was overshadowed by the more powerful monarchy of the Picts, with which, as well as with its neighbors in the south—the Britons of Cumbria—it was in almost unceasing conflict. The Scots were for a time under some subjection to the English of Northumbria, but recovered their independence on the defeat and death of King Egfrid in battle with the Picts at Nechtansmere 685. In the middle of the 9th c., by a revolution whose nature is unknown, the Scots acquired predominance in n. Britain.—Kenneth, son of Alpin, lineal descendant of Fergus and Aidan, succeeded his father as king of the Scots 836. The Pictish kingdom was weakened by civil dissension and a disputed claim to the crown. Kenneth laid claim to it as the true heir in the female line, and was acknowledged king 843.

King Kenneth transferred his residence to Forteviot in

## SCOTLAND.

Stratherne, which had been the Pictish capital, fixing soon afterward the ecclesiastical metropolis of the united kingdom at Dunkeld, where he built a church dedicated to St. Columba. The Picts and Scots, each speaking a dialect of the Celtic, gradually coalesced into one people, whose territory extended from the Firths of Forth and Clyde to the n. extremity of Britain. The crown descended to a line of princes of the family of Kenneth, whose rule gave unity and comparative tranquillity to the Scots of Britain, which those of Ireland, at no time really united under one prince, never possessed. The first interruption to the descent of the crown in the line of Kenneth was the reign of a usurper named Grig, round whose name, amplified to Gregory by the writers of a later age, a cloud of legendary fiction gathered. The old family was restored on his expulsion 893.

The reign of Constantine (reigned 904-953), son of Aodh, was remarkable. In his time it is probable that the seat of the ecclesiastical primacy was transferred from Dunkeld to St. Andrews, and that the regal residence was fixed at Scone. At the latter place, in the sixth year of his reign, the chronicles mention that Constantine the king, Kellach the bishop, and the Scots, swore to observe the laws and discipline of the faith and the rights of the churches and the gospels. This seems to indicate the meeting of some sort of council, civil or ecclesiastical, or more probably a combination of both, according to the form prevalent at this period among the Celtic and the Teutonic nations. Even before the establishment of the kingdom of the Picts and Scots in the person of Kenneth, n. Britain had experienced the attacks of a new enemy, the Scandinavian invaders, generally spoken of as Danes. Constantine resisted them bravely, but toward the end of his reign he entered into alliance with them in opposition to the English. A powerful army of Scots and Picts, Britons and Danes, disembarked on the Humber, and was encountered at Brunanburgh by Athelstane, King of England. A battle there was the first of a series of unfortunate combats by Scottish princes on English ground. The confederate army was defeated, and though Constantine escaped, his son was among the slain. Weary of strife, the king retired to the Culdee monastery at St. Andrews, of which he became abbot, and where he died 953.

During the reign of Malcolm, the first of that name, successor of Constantine, a portion of the Cumbrian kingdom, including the modern Cumberland and part of Westmorland, which had been wrested from the Britons by Edmund, King of England, was bestowed by Edmund on the Scottish sovereign. This grant was the foundation of that claim of homage made by the English kings on the Scottish sovereigns, which afterward became the cause or the pretext for the great struggle between the two nations. The n. kingdom was further increased in the reign of Kenneth, son of Malcolm, by the acquisition of Lothian, and of n. Cumbria, or Strathclyde. Lothian, formerly a part of the Northumbrian kingdom, and entirely English in

## SCOTLAND.

its population, was bestowed on Kenneth by Edgar, King of England. The Cumbrian kingdom, which had at one time extended along the w. coast from the Firth of Clyde to the border of Wales, had been weakened by the loss of its s. territories; and it now fell under the dominion of the Scottish king. The last addition to Scotland in the south was under Malcolm II. (reigned 1003-33), son of Kenneth, who acquired the Merse and Teviotdale from the Earl of Northumbria, and thus advanced his kingdom on the e. border to the Tweed. The kings who immediately followed are better known to the general reader than any of their predecessors, poetry having made their names familiar to every one.—Malcolm's successor was his grandson Duncan, whose brief reign was followed by that of Macbeth (q.v.). The latter was a vigorous and prudent ruler, munificent to the church, and famous as the only Scottish king who made a pilgrimage to Rome. But though by marriage he was connected with the royal line, he was unable to secure the affection of his subjects. Malcolm, eldest son of Duncan, assisted by his kinsman Siward, Earl of Northumbria, invaded Scotland. The usurper was defeated and slain at Lumphanan, in Mar (1056), and Malcolm III. was acknowledged as king.

The long reign of Malcolm III. (1056-93) was the commencement of a great social and political revolution in Scotland. His residence in England, and still more his marriage with the English Princess Margaret, sister of Edgar Atheling, led to the introduction of English customs, the English language, and an English population into the n. and w. districts of the kingdom, which hitherto had been inhabited mostly by a Celtic race. The influx of English colonists was increased by the tyranny of William the Conqueror and his Norman followers. All received ready welcome from the Scottish king, whose object it was to assimilate the condition of the Scots in every respect to that of their fellow-subjects in Lothian; and what his stern, though generous, character might have failed to accomplish, was brought about by the winning gentleness and Christian graces of his English queen.

Malcolm fell in battle before Alnwick Castle 1093, and Margaret survived only a few days: the work of their reign seemed about to be utterly overthrown. The Celtic people of Scotland, attached to their old customs, and disregarding the claims of Malcolm's children, raised his brother, Donald Bane, to the throne. The success of this attempt to restore a barbarism which the better part of the nation had outgrown was brief; Donald was dethroned, and Edgar, eldest surviving son of Malcolm and Margaret, was acknowledged as king. The very name of the new sovereign marked the ascendancy of English influence. That influence, and all its beneficial effects, increased during the reigns of Edgar and his brother and successor, Alexander I.—The change went steadily on under the wise and beneficent rule of David I. (q.v.), youngest son of Malcolm. His reign (1124-53) was devoted to the task of ameliorating the condition of his subjects, which was

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nobly accomplished. David was the model of a Christian king. Pious, generous, and humane, he was at the same time active and just, conforming himself to the principles of religion and the rules of the church, but never forgetting that to him, not to the clergy, God had committed the government of his kingdom. He was all that Alfred was to England. Had he reigned over a more powerful nation, his name would have been one of the best known of the princes of Christendom. At his accession, Scotland was still but partially civilized, and it depended in a great measure on the character of its ruler whether it was to advance or recede. It received a permanent stamp from the government of David. The Celtic people were improved morally, socially, and ecclesiastically; and all along the e. coast were planted Norman, English, and Flemish colonies, which gradually penetrated into the inland districts, and established the language and manners of that Teutonic race which forms the population of the greater part of Scotland. David encouraged and secured the new institutions by gradually superseding the old Celtic traditional usages by a system of written law: thus the first genuine collections of Scottish legislation belong to his reign. David was as great a reformer in the church as in the state. The ecclesiastical system prevalent in Scotland almost till his time differed in some points from that in England and on the continent, bearing a great resemblance to that of Ireland, from which it was indeed derived. David established dioceses, encouraged the erection and endowment of parishes, provided for maintenance of the clergy by tithes, and, displacing the old Celtic monastic bodies, introduced the Benedictine and Augustinian orders.

David did not forget duties of a less agreeable kind. He knew that a Scottish king really held his crown by tenure of the sword; and none of his fierce ancestors was a more intrepid warrior than the accomplished and saintly David. His skill and courage were shown, though without success, at the Battle of the Standard. As the representative through his mother of the ancient kings of England, he had many friends in that country; and had the Scottish army been successful, the history of the two kingdoms might have been different. As it was, he contented himself with maintaining the cause of his sister's child, Empress Matilda, against King Stephen.

David's grandson and successor, Malcolm IV., reigned 12 years (1153-65), and the next king was William the Lion, Malcolm's brother (reigned 1165-1214). These princes pursued the policy of their grandfather with equal resolution, though sometimes with less success. They were embarrassed by their connection with the English King Henry II., who took advantage of his superior power and ability to impose unwise and unjust restraints on the independence of the Scottish sovereigns and their kingdom—a policy which laid the foundation of the unhappy national strife of after years. This was averted for a time by the concessions of Richard I. 1189. 'For more than a

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century,' says Lord Hailes, 'there was no national quarrel, no national war between the two kingdoms—a blessed period.' That period was well employed by the next two kings, Alexander II. and Alexander III., son and grandson of William the Lion, to consolidate the institutions of their kingdom, and extend and confirm what had been begun by David. Alexander III. was one of the ablest and best of the Scottish kings. By a treaty with the king of Norway, he added to his kingdom Man and the other islands of the Western Sea, held by the Norwegians. His sudden death, 1286, was one of the greatest of calamities: it closed a period of prosperity and improvement such as the kingdom did not again enjoy for nearly 500 years. The history of this interesting period has yet to be written. The only modern account of any value is in the accurate but meagre Annals of Lord Hailes. Tytler begins his History with the reign of Alexander III.; and Robertson, in his narrative of two reigns—in popular language called the History of Scotland, as Lord Macaulay's similar work is called the History of England—speaks of what took place during the whole time from the union with the Picts to the death of Alexander III. as 'events which may be slightly touched, but merit no particular or laborious inquiry.'

On the death of the infant granddaughter and heiress of Alexander III., 1290, the succession to the crown was disputed. The question between the two chief claimants, Baliol and Bruce (q.v.), was not free from doubt, according to the customs of the time; and Edward I. of England, to whom the decision was referred, appears at first to have acted with good faith. But this great king, who had already subdued Wales, was now bent on uniting the British Islands under one sceptre; and in the pursuit of that object he sacrificed humanity, honor, and justice. The results were deplorable. The national spirit of the Scots was finally roused, and after a long struggle, under Wallace and Bruce, they secured their independence on the field of Bannockburn (q.v.). The battle of freedom was won, but at the expense of tranquillity and civilization. The border counties were continually wasted by the English; the central provinces were the scene of frequent warfare among the chief nobles; and the highland districts became more and more the seat of barbarism, the Celtic tribes reacquiring something of their old ascendancy, as they did in Ireland in the troubled times which followed the invasion of Edward Bruce. The strong arm of King Robert might have repressed these disorders, had his life been longer spared after the treaty of Northampton; but his death, and the accession of an infant son, again plunged the country into all the miseries of foreign and civil war. When that son, David II., grew up to manhood, he proved in every respect unworthy of his great father. His reign, and that of his successors, Robert II. and Robert III., the two being the first princes of the House of Stewart, were the most wretched period of Scottish history. In 1411 half of the kingdom would have

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become absolutely barbarous if the invasion of the Lord of the Isles had not been repulsed at Harlaw (q.v.) by the skill of the Earl of Mar, and the bravery of the lowland knights and burgesses.

A happier time dawned on the release of James I., 1424, from his English captivity. The events of the following period are better known, and a brief notice of the most important will suffice: for details, see names of the particular kings. The vigorous rule of James I. had restored tranquillity; but strife and discord were brought back on his assassination. One of the most calamitous features of the time was a succession of minors in the sovereignty. James himself had succeeded when a child and a captive; James II., James III., James IV., James V., Mary, and James VI., all succeeded while under age, and all, except James IV., when little more than infants. The courage and ability shown by almost all the Stewart princes were insufficient to repair the mischiefs done by others in the beginning of their reigns, and to abate the great curse of the country—the unlimited power and constant feuds of the nobles. The last addition to the Scottish kingdom was made in the reign of James III., when the islands of Orkney and Zetland were made over to him as the dowry of his queen, Margaret of Denmark. The marriage of James IV. with Margaret of England was far more important in its ultimate results, and brought about in the reign of his great-grandson that peaceful union with England which the death of the Maiden of Norway had prevented in the 13th c. Many good laws were enacted during the reigns of the Jameses; but the wisdom of the Scottish legislature was more shown in framing them than the vigor of the government in enforcing them. Among the most important improvements of the period was the establishment of universities—the first of which, that of St. Andrews, was founded during the minority of James I.—and the institution of the College of Justice in the reign of James V.

During the reign of James V., religious discord added another element to the evils with which Scotland was afflicted. The practical corruptions of the church were greater than almost in any other country in Europe, and one of the consequences was, that the principles of the Reformation were pushed further than elsewhere. The first great ecclesiastical struggle had hardly ceased, by the overthrow of the Rom. Cath. system, when the strife began anew in the Reformed Communion in a contest between Episcopacy and Presbyterianism, the former being supported by the sovereign, the latter by the common people, the nobles throwing their weight into either scale as it suited their policy at the time. James VI. struggled hard to establish an absolute supremacy in both church and state, in opposition to a powerful party which admitted no royal authority whatever in the former, and very little in the latter. After his accession to the English crown, he was apparently successful in carrying out his designs; but during the reign of his son, Charles I., the contest

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again broke out, with increased bitterness. The nobility, whose rapacity had been checked by the sovereign, joined the popular party. The opponents of the crown bound themselves together, first by the National Covenant, afterward, in alliance with the English Puritans, by the Solemn League and Covenant. Their efforts were completely successful, but their success led to the utter overthrow of the British monarchy by Cromwell.

The restoration of Charles II. was welcomed by all classes, wearied as they were of a foreign and military rule, but especially by the nobles and gentry, who had learned by bitter experience that the humiliation of the sovereign was necessarily followed by the degradation of their order. Had the government of Charles II. and James VII. been reasonably just and moderate, it could hardly have failed in securing general support; but unfortunately it was more oppressive and more corrupt than any which Scotland had experienced since the regencies in the minority of James VI. The natural result was the revolution, which seated William and Mary on the throne.

No sooner had the majority of the nation been successful in this, than many of them began to repent of what they had done, and Jacobitism became more popular than royalist principles had ever been when the House of Stewart was on the throne. The discontent was greatly increased by the fears of English influence. The state of matters grew so threatening after the accession of Queen Anne, that the ruling English statesmen became satisfied that nothing short of an incorporating union between the two kingdoms could avert the danger of a disputed succession to the throne and of a civil war. Supported by some of the ablest and most influential persons in Scotland, they were successful in their design, though it was opposed by a majority of the Scottish people. The Act of Union was formally ratified by the parliament of Scotland 1707, Jan. 16. It received the royal assent, and came into operation May 1 of the same year. The union continued to be unpopular in Scotland for many years, an unpopularity increased by the corrupt means freely used to carry it through. But the discontent gradually ceased, and the ultimate consequences of the measure have been most beneficial to both kingdoms.

The parliament of Scotland was originally composed, like the English parliament, of three classes—the ecclesiastics (bishops, abbots, and priors), the barons, and the burgesses. The spiritual lords, during the establishment of Episcopacy after the Reformation, were composed of bishops only. When Presbyterianism was established at the time of the Covenant, and when it was formally ratified by law at the revolution, the ecclesiastical estate ceased to have any place in parliament. The barons, or immediate vassals of the crown, at first sat in their own right, whether holding peerages or not; but afterward the peers alone sat, the others sending their representatives. The burgesses were the representatives of the burgh. All the three estates sat to the very last in one

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house, the sovereign presiding in person, or through a commissioner named by him.

It would be impossible within reasonable limits to give a complete account of the original authorities for the history of Scotland. The principal are the following: For the period before the accession of David I.—Venerable Bede, the Early Lives of the Saints, the Irish Annals, the brief Scottish Chronicles published by Innes and Pinkerton, and the ancient English Chroniclers. For the subsequent period till the Reformation—the Chronicles of Melrose and Lanercost, the Scoti Chronicon of Fordun and Bower, Winton's Chronicle, Leslie's and Buchanan's Histories, the English Chroniclers, the Ecclesiastical Cartularies, and the Acts of the Scottish Parliament. For the period from the Reformation to the Union—Knox's, Calderwood's, and Spottiswood's Histories, Baillie's Letters, Wodrow's and Burnet's Histories, the Acts of Parliament, and the State Papers. The Scotch Record publications include *The Exchequer Rolls of S.; Accounts of Lord High Treasurer; Register of Privy Council; Documents illustrating Scotch History*; see also *Calendar of State Papers—Scotland, 1509–1603*. Modern works are Innes's *Critical Essay*, Pinkerton's *Inquiry*, Chalmers's *Caledonia*, Hailes's *Annals*, the histories of Robertson, Tytler, Laing, and Burton, Chambers's *Domestic Annals*, and Skene's *Celtic Scotland*.

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SCOTLAND, CHURCH OF: the Presbyterian Church as established and maintained in Scotland by the govt.—For the Christianization of Scotland, see COLUMBA: CULDEES: NINIAN: PICTS: SCOTLAND. The doctrines of the ancient Scottish Church were the same as those of the rest of western Christendom. In ritual, there were some points of difference, but so slight that the most important related to the time of the Easter festival. In these, also, the Scots gradually conformed to the usage of the Roman and English Churches. In one point, however, there continued for several centuries a marked distinction in ecclesiastical government between the Scots and Irish on the one hand, and the churches of England and the continent on the other. The Scots recognized the same orders of the ministry—bishops, priests, and deacons—as other Christians did; and, like them, they held that ordination could be given only by bishops. But they acknowledged no such supremacy of jurisdiction in the Episcopal order as was held by other churches. In Scotland, there were neither dioceses nor parishes; but there were numerous monasteries, in which the abbots, whether bishops or priests, bore chief rule, all being in subordination to the successor of St. Columba, the presbyter-abbot of Iona, who, in virtue of that office, was primate of the Picts and Scots.

When Iona was desolated by the Northmen, the primacy seems to have been transferred in the middle of the 9th c. to the abbots of Dunkeld, and about 50 years afterward to the Bishops of St. Andrews, who became known as *Episcopi Scotorum*, the bishops of the Scots. Slowly at first, but gradually, an assimilation to the English and continental practices began, a change rendered more easy by the Scottish dominion being extended over Lothian, where the ecclesiastical system was the same as that of England. A great impulse was given in the same direction by the marriage of Malcolm III., King of the Scots, with Margaret, sister of Edgar Atheling. The king and queen used their utmost efforts to introduce English usages in ecclesiastical as in other matters; and Margaret herself held repeated conferences for that purpose with the chief Scottish ecclesiastics, at which her husband acted as interpreter. The principal points in which she attempted to bring about a reform were the commencement of the Lent fast, the superstitious infrequency of receiving the communion, and the lax observance of Sunday and of the scriptural and canonical restrictions on marriage between relations.

The reform begun by Malcolm and Margaret was fully carried out by their youngest son, David I. These improvements were completed by his successors, and before the end of the 12th c. the ecclesiastical system of S. differed in no important point from the rest of Europe. Some Scottish writers have lamented the change, as being one from purity of belief and practice to superstition and immorality. This is undoubtedly a mistake. The Celtic Church had become very corrupt, and the clergy were inferior both in learning and in morals to their brethren in the south. King David was a reformer in the best sense of

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the word, and it does not detract from the character of his reformation that as time went on the Scottish Church became involved in those superstitions with which the rest of Christendom was overspread.

The ritual of the Scottish mediæval church was almost the same as that of England, the Salisbury Missal and Breviary being the models of the Liturgies and Office Books used in Scotland. The external system of the church—cathedral, parochial, and monastic—was also in almost every point identical. The chief monastic orders were the Benedictine, and its most important branches the Cluniac and the Cistercian, the canons regular of St. Augustine, and the Reformed Premonstratensian canons. The Cluniacs and Cistercians were in strict subordination to the mother-houses of their orders at Cluny and Citeaux. In the 13th c. the Dominican, Franciscan, and Carmelite friars were introduced into Scotland. There were 12 dioceses in the Scottish Church, to which Orkney was added on the transference of those islands to the Scottish sovereign in the 15th c. The 12 dioceses were Caithness, Ross, Moray, Aberdeen, Brechin, Dunkeld, Dunblane, St. Andrews, Argyle, the Isles, Glasgow, and Galloway. The single point in which the mediæval church till the 15th c. differed from that of England and other churches of the west, was in its having no metropolitan. St. Andrews, and next to it Glasgow, had a certain precedence; the bishops of the former see, and failing them the bishops of the latter, having the privilege of crowning and anointing the sovereign. But they had no jurisdiction over the other sees, nor did their bishops bear the style of archbishop. In virtue of a bull of Pope Honorius III. 1225, the bishops, abbots, priors, and other chief ecclesiastics, with representatives of the caputular, collegiate, and conventional bodies, assembled annually in provincial synod, sitting in one house, under the presidency of a conservator chosen by and from the bishops. The chief govt. of the church under the pope thus devolved on these synods and their elective presidents. This continued until the erection of St. Andrews into an archiepiscopal and metropolitan see, in virtue of a bull of Pope Sixtus IV. 1472. By this bull all the Scottish sees were made suffragans to that of St. Andrews, whose bishops were now to be styled archbishops. In 1492 Glasgow was raised to the dignity of a metropolitan see by a bull of Pope Innocent VIII.; and the two Scottish abps. held toward each other the same position as the archbishops of Canterbury and York, being sometimes involved in the similar unseemly broils in regard to jurisdiction and precedence.

S. shared in all the errors of belief and superstitious practices in worship to which the rest of Christendom was subjected, and the ignorance and immorality of the clergy were far worse than in England, or perhaps anywhere else in Europe, except in the Scandinavian churches. The desire for reformation which led to the proceedings of Huss and Wickliffe, produced similar effects in the Scottish kingdom. As early as 1406 or 7, James Resby, English priest, disciple of Wickliffe, was burned at Perth;

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and 1433 Paul Crawar, German Hussite, was burned at St. Andrews. The opinions of Wickliffe continued to be privately taught, particularly in the s.w. counties, where his followers were known by the name of the Lollards of Kyle. In the following century, the intercourse with the continent was frequent and close, and the effects of Luther's preaching and writings were soon felt in Scotland. In 1525 the importation of Lutheran books, and the propagation of the Reformer's tenets, were forbidden by act of the Scottish parliament; and 1528, Feb., Patrick Hamilton (q.v.), Abbot of Ferne, was burned at St. Andrews for teaching and publishing Lutheran doctrines. The piety of Hamilton, and the patience with which he bore his sufferings, induced others to follow his teaching and example. Several persons, both ecclesiastics and laymen, were subsequently burned, and many more fled to England or the continent.

The persecution, though encouraged or permitted by the bishops, was disapproved by some ecclesiastics of learning and influence, who were desirous of effecting a reform in the church without breaking off from communion with the hierarchy. The efforts of this school were unsuccessful, and the Scottish nation was gradually divided into two parties—one of which, headed by the bishops and supported by the state, was determined to resist all change; and the other, composed of a considerable number of the clergy both regular and secular, of the gentry, and of the burgesses of the large towns, was disposed to carry its Reforming principles far beyond what had been done by Luther and Melanchthon. These two parties came into deadly conflict 1546. Feb. 28 in that year, George Wishart, most eloquent of the Reforming preachers, was condemned to death by an ecclesiastical court, at which Cardinal Beaton, Abp. of St. Andrews, presided; and was burned. May 28 the cardinal was murdered by Norman Leslie and other adherents of the Reforming party. The struggle continued during the regency of the Earl of Arran and that of Mary of Lorraine, mother of Mary the young Queen of Scots.

In 1559 the Reformers became strong enough to set the regent at defiance. Various circumstances encouraged them to demand freedom for their opinions, particularly the death of Mary of England and the accession of Elizabeth. They were further animated by the return from Geneva of their chief preacher, John Knox. The conflict was to be decided by other than spiritual weapons. The regent, and the Reformed now known by the name Congregation, met in open warfare. The contest ended after a twelvemonth in the triumph of the Congregation. A parliament met at Edinburgh 1560, Aug. 1: the Reforming party had complete ascendancy; and the jurisdiction of the pope was abolished, the mass was proscribed, and a Confession of Faith, drawn up by Knox and his associates, was ratified—the spiritual lords making a faint resistance.

The new Confession of Faith adhered, in all essential articles of belief, to the ancient creeds of the church. In

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regard to the sacraments, it differed entirely from the recent corrupt teaching of the Western Church; but its language, on the whole, was moderate and conciliatory. In reference to ceremonies, and details of church polity, it declared such things temporary in their nature, and not appointed for all times and places, and that they ought to be altered when they fostered superstition and ceased to be edifying.

A Book of Discipline was soon afterward drawn up by the compilers of the Confession, which was generally approved of, but did not receive the sanction of parliament. It followed out in detail the principles laid down in the Confession. In regard to the office-bearers of the church, various orders were mentioned, but three were specially of importance—ministers, elders, and deacons. Ministers were to be chosen by each several congregation, but were to be examined and admitted in public by the ministers and elders of the church. No other ceremony, such as imposition of hands, was to be used. The elders and deacons were to be chosen yearly in each congregation, and were not to receive any stipend, because their office was to be only from year to year, and because they were not to be debarred from their own private occupations. For better provision for the wants of the time, persons, called superintendents, were appointed in particular districts, with power to plant and erect churches, and to appoint ministers within the bounds of their jurisdiction.

The chief governing as well as legislative and judicial power in the Reformed Church was intrusted to a General Assembly, which met half-yearly or yearly, and was composed of the superintendents, ministers, and lay commissioners; and which gradually, by the introduction of the system of representation, assumed the form and more than the power of a parliament.

The worship of the Reformed Church was modelled on that established by Calvin at Geneva. It was embodied in a formulary called the Book of Common Order, which for nearly a century continued to be generally used. It contained forms for ordinary worship on Sundays and weekdays, and for administration of the sacraments, and for some other occasions. The minister was not absolutely restricted to these forms. Except in the singing of Psalms, the people took no direct part in ordinary worship, and there was no distinction of ecclesiastical seasons, all holy-days whatever except Sunday being abolished.

The form of church government established at the Reformation did not remain long undisturbed. Some of the most zealous Protestants thought the danger to which the church was exposed from state tyranny and aristocratical oppression could best be met by restoring the bishops to their ancient position both in the church and in the parliament; while others, of equal zeal and sincerity, saw in this only the commencement of a plan for bringing back all the errors of popery. A scheme of this kind was actually established for some time, and the sees were filled with Prot. bishops set apart for the office by their brethren of

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the ministry.' It was almost immediately attacked by some of the ministers, who soon found a leader in Andrew Melville, a scholar of considerable eminence, who returned to Scotland 1574, after a residence in Geneva, during which he had ardently embraced the new opinions as to ecclesiastical government maintained by Beza.

The struggle continued for some years, the bishops being encouraged by the sovereign and his advisers, whose support was frequently of little real advantage to them, and Melville, receiving the zealous assistance of many of the ministers, and of the great body of the common people, who sympathized with him in his theories of representative civil and ecclesiastical government. Melville was at last entirely successful. His opinions were embodied in what was called the Second Book of Discipline, which received the formal sanction of the general assembly 1581. This formulary differed much from the First Book. It laid down authoritatively those principles in regard to ecclesiastical authority which the Presb. party among the English Puritans was vainly striving to establish in the southern kingdom, and was in reality an attempt to make the civil power subordinate to the ecclesiastical, even in matters secular. It recognized four orders of office-bearers in the church: the Pastor, Minister, or Bishop; the Doctor; the Presbyter or Elder; and the Deacon. These were to be set apart by ordination, and the imposition of the hands of the eldership; but no one was to be intruded into any office contrary to the will of the congregation, or without the voice of the eldership. Four sorts of church courts, one above another, were sanctioned; first, of particular congregations one or more; second, of a province, or what was afterward called the Provincial Synod; third, of a whole nation; and fourth, of the universal church. What is generally regarded as the most essential feature of the Presb. system—the Presbytery—was not yet introduced in its proper form, the lowest court being a combination of what were afterward known as the Presbytery and the Kirk-Session. It was, however, introduced before 1592, when the privileges of general and provincial assemblies, presbyteries, and parochial sessions were ratified by parliament, though the Book of Discipline itself did not receive formal sanction.

King James had agreed to the establishment of Presbyterianism; but personally, and as a sovereign, he disliked its discipline, and he soon endeavored to overthrow it. His accession to the crown of England enabled him to do this with more authority. He gradually obtained from the general assembly a recognition of the civil rights of the bishops, and this led to restoration of their ecclesiastical privileges. His changes were sanctioned by a general assembly which met at Glasgow 1610, and in the course of the same year Episcopacy was restored in reality, as well as in name, by the consecration of three Scottish prelates, by four of the English bishops, at London. The king wished to assimilate the Scottish Church, as far as possible, to that of England; and his next important

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movement was the establishment of what are called the Five Articles of Perth: see PERTH, FIVE ARTICLES OF. These changes excited great dissatisfaction in Scotland, particularly in the s. counties, but it gradually abated to a large extent, and might have ceased, had not further innovations been attempted. It was the wish of James to introduce a prayer-book like that of the English Church, in place of the Book of Common Order, but he saw the danger with which the proposal was attended, and gave it up or postponed it. His son Charles was as inferior to his father in prudence as he excelled him in an ecclesiastical conscientiousness and zeal. During his first visit to Scotland he added another bishopric—Edinburgh—to the dioceses of the Scottish Church. Most unwisely and most improperly he endeavored by his royal authority to introduce into that church a Book of Canons and a Liturgy framed on the model of those of England. The king had many loyal supporters in all parts of Scotland, and in the n. Episcopacy was preferred by the people to Presbyterianism. But the storm of popular indignation which was now roused swept everything before it. The king's opponents banded themselves together by the National Covenant, and in a general assembly at Glasgow abolished the Perth Articles and Episcopacy, and re-established Presbyterianism. Charles attempted to maintain his claim by the sword, but was unsuccessful, and obliged to ratify in parliament all that had been done by his opponents.

Had the Covenanters been satisfied with the victory which they had won, Presbyterianism might have remained the established religion of the Scottish kingdom. But they could not resist the calls from those in England who agreed with their views; rather they yielded to the delusion of extending their own strict discipline over the churches of England and Ireland. They attempted, in the opposite direction, what James and Charles had failed to accomplish. For a time their policy seemed to triumph. The Solemn League and Covenant of the three kingdoms, after having been approved by the general assembly in Scotland, was signed by the Assembly of Divines which the parliament had summoned to meet at Westminster, and by the parliament itself. The ecclesiastical documents afterward drawn up originated with the Westminster Assembly of Divines, but were sanctioned by the assembly in Scotland: the principal were a Directory for Public Worship, a Confession of Faith, and a Larger and Shorter Catechism (see ASSEMBLY OF DIVINES: CREEDS AND CONFESSIONS). The first of these documents was intended to supersede the Book of Common Prayer in England, and, indirectly, the Book of Common Order in Scotland. It laid down certain general rules in regard to public worship and the administration of the sacraments, but left very much to the discretion of the particular ministers and congregations.

The union between the Scottish Presbyterians and that part of the English Puritans who favored a strict ecclesi-

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astical government, which should practically control also the civil state, aroused in England a growing protest in behalf of liberty from the domination of ecclesiastics, whether Presb., Episc., or Rom. Catholic. The control of English Puritanism by Scotch Presbyterianism was dissolved by the ascendancy of the Independents in England. Scotland, distracted by civil and ecclesiastical dissension, was unable to defend itself against Cromwell, who was opposed to any system of church govt. which claimed control over the civil power or which refused universal toleration of all forms of Protestantism. Scotland was conquered and kept thoroughly under subjection by the English army, which forbade the meetings of the general assembly, but left the other courts and the rest of the church system as they were before. At the Restoration, the higher classes generally, who had suffered under the ecclesiastical tyranny of the Presb. ministers, were zealous for the re-establishment of Episcopacy. The greater part of the nation, except in the s.w. provinces, was indifferent, and the king experienced no difficulty in restoring the bishops to their former rights in both church and state. But Episcopacy alone was restored; there was no attempt to introduce a liturgy, or even to enforce the observance of the Perth Articles. The new primate, Abp. Sharp, was an able man, of good moral character, but ambitious and overbearing, and the Covenanters never forgave his change from Presbyterianism, though he had always belonged to the more moderate of the two parties into which the church was divided. He was almost the only one of the bishops who had political influence; and unfortunately for himself and the hierarchy, that influence was generally used to encourage, not to restrain, the severe measures of the government. When the primate was assassinated, that severity became a cruel tyranny, and many who had no predilection for any particular ecclesiastical opinions were ready to welcome the change which took place at the revolution.

When the Scottish Estates met 1689, to consider what course was to be adopted in the northern kingdom, the bishops declined to abandon King James. Whatever might have been the consequences had they taken the opposite course, this resolution was fatal to the Episc. establishment. William and Mary were called to the throne, and Prelacy was declared an insupportable grievance, and was abolished. In the following year Presbyterianism was re-established, and the Westminster Confession of Faith was ratified as the national standard of belief, and the right of patrons to nominate to ecclesiastical benefices was taken away. In the end of the same year a general assembly was held, the first which had been allowed to meet since its dissolution by order of Cromwell. It was composed, as before, of ministers and elders from the various presbyteries, and of elders from the burghs and universities, and was presided over by a lay commissioner, named by the crown, and a minister elected by the members as moderator. With the exception of some years in

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the reign of William, the assembly has continued to meet annually since the revolution, and to transact business during the periods when it was not in session by a commission named by itself for the purpose: see ASSEMBLY, GENERAL. The other chief ecclesiastical events of William's reign were a series of vain attempts on the part of the sovereign to bring about a comprehension of the Episcopal clergy with those of the Establishment, and the passing by the assembly 1697 of what was called the ' Barrier Act' (q.v.), which guarded against sudden legislation, by providing that no permanent act should be passed until it had received the approbation of the majority of the presbyteries.

During the reign of Queen Anne, and in 1707, England and Scotland were united into one kingdom. A special statute was passed for the security of the Prot. religion and Presb. church govt. in the latter country; providing that these should continue without any alteration in time to come, and confirming the act of William and Mary, which ratified the Confession of Faith and settled the Presb. form of church government.

In 1712 an act was passed by the Brit. parliament which restored to patrons in Scotland their right of presentation to benefices. This statute excited great discontent among the members of the Established Church, and for many years attempts were made to obtain a repeal of it. Though these attempts were unsuccessful, the provisions of the statute were long practically disregarded. When at length the general assembly began to act upon it, the dissatisfaction increased among those who held the divine right of the people to choose their own ministers. The leader of the discontented party was a minister named Ebenezer Erskine; who with his adherents, 1733, finally separated from the Establishment, and formed a communion which took the title Associate Presbytery, though its members were popularly known as Seceders. The Seceders themselves were soon divided by a very absurd dispute into two bodies, called the Burgher and Antiburgher Synods. In 1761 another secession from the Establishment took place in connection with the law of patronage; and the separated body assumed the name of the Presbytery of Relief.

There were no further secessions from the church; but its members were divided into two parties, known as the Moderates and the Evangelicals (q.v.), the former favorable, the latter hostile to the law of patronage. For many years the Moderates, headed by Dr. Robertson the historian and others of his school, and supported by the influence of the government, maintained ascendancy in the general assembly and throughout the country. In the latter years of George III., and during the reign of George IV., this ascendancy began to decrease. The political excitement which prevailed in the beginning of the reign of William IV. strongly affected the Scottish Establishment, which from its very constitution is peculiarly liable to be moved by the impulses of popular feeling. The two parties in the general assembly engaged in a struggle more fierce than

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any in which they had yet met; and the subject of dispute, as before, was immediately connected with the law of patronage. Dr. Chalmers, the most distinguished minister in Scotland, added the whole weight of his influence to the popular party, and 1834 an interim act of assembly was passed, known as the Veto Act, which declared it a fundamental law of the church that no pastor should be intruded on any congregation contrary to the will of the people; and laid down certain rules for carrying out this principle. The legality of this act was doubted; and in connection with a presentation to the parish of Auchterarder, the presentee, on being rejected by the presbytery in terms of the Veto Act, appealed, with concurrence of the patron, to the court of session—the supreme civil court in Scotland. That court decided that the conduct of the presbytery in rejecting the presentee was illegal, and their judgment was affirmed by the house of lords. Other cases of similar nature followed, and something like a conflict took place between the civil and ecclesiastical courts, the former enforcing their sentences by civil penalties, the latter suspending and deposing the ministers who obeyed the injunctions of the court of session. In the general assembly 1843 the dispute came to a crisis. A large number of ministers and elders of the popular party left the assembly, and met apart in a similar body, of which Dr. Chalmers was chosen moderator. They formed themselves into a separate communion under the title ‘The Free Church of Scotland,’ and gave up their benefices in the Established Church, and all connection whatever with that body. The Free Church carried off about one-half of the members of the Establishment, and became a rival communion in most of the parishes: see FREE CHURCH. The act of Queen Anne was repealed by Lord Beaconsfield 1872, and by an act of parliament 1874, patronage was abolished in the Established Church, and the right of choosing the minister transferred to the congregation: see PATRONAGE.

In 1820 the Burgher and Antiburgher Seceders were united under the name Associate Synod of the Secession Church; and 1847 this Associate Synod and the Relief Synod were united under the name ‘The United Presbyterian Church’ (q.v.). The recent negotiations for a union of the United Presbyterian Church and the Free Church have led to no practical result —See PRESBYTERIANISM: ETC.

As to the history of *Scottish Episcopacy* subsequent to the revolution, it is a common but erroneous opinion that almost all the Episcopal clergy were Jacobites from the time of the accession of William and Mary. The bishops were so; but a large number, probably a majority of the clergy, had at first no objection to take the oath of allegiance to the new govt. During the reign of Queen Anne the Episcopal clergy were well disposed to the govt., knowing the queen’s good wishes to their communion. They were frequently harassed by the courts of the Establishment; but all who were willing to take the oaths obtained an ample protection for their worship on the passing of the

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**Toleration Act of 1712.** On the death of the queen, almost all the clergy, and most of the laity, were involved directly or indirectly in the attempts to overthrow the Hanoverian dynasty, and it was this which finally made the names Episcopalian and Jacobite for many years convertible terms.—In the mean time, the succession of bishops had been kept up by new consecrations, and after some years the dioceses, though diminished in number, were regularly filled. An important change took place in the forms of worship. No longer trammelled by their connection with the state, they adopted liturgical forms similar to those in the English Prayer-book, and in almost all cases identical, except that many of the congregations used an office for the communion modelled on that of the Scottish Liturgy of King Charles I. The Episcopilians took no such open part in the insurrection of 1745 as in that of 1715, but their sympathies were known to be with the House of Stewart; and the govt. carried through parliament some intolerant acts, which were put in execution with great harshness, and which for many years suppressed all public worship in the Episc. communion. It was only after the accession of George III. that these statutes ceased to be actively enforced; and it was not till 1792 that the Episcopilians, who from the death of Prince Charles had acknowledged the reigning dynasty, were relieved from the penal laws. The act which gave this relief imposed restrictions on their clergy officiating in England, and prohibited their holding benefices in the English Church. In 1804 the bishops and clergy agreed to adopt the Thirty-nine Articles of the Church of England, and 1863 the Prayer-book was adopted as the authorized service-book of the Episc. Church, permission being given in certain cases to use the Scottish Communion Office. The restrictions imposed on the Scottish clergy by the act of 1792 were modified 1840; and 1864 entirely removed, the right being reserved to bishops in England and Ireland to refuse institution to a Scottish clergyman without assigning any reason, on his first presentation to a benefice in England or Ireland, but not after he should have once held such benefice.—The dioceses of the Scottish Episc. Church are seven: Moray, Aberdeen, Brechin, Argyle, St. Andrews, Edinburgh, Glasgow. The bishops are chosen by the clergy of the diocese and by representatives of the lay communicants, a majority of both orders being necessary to a valid election. One of the bishops, under the name Primus, chosen by the other bishops, presides at all meetings of the bishops, and has certain other privileges, but possesses no metropolitan authority. The highest judicial body is the Episc. College, composed of all the bishops. The highest legislative body is a General Synod, of two houses, one of the bishops, the other of the deans and the representatives of the clergy.

For the chief original authorities for the ecclesiastical history of Scotland to the revolution, see those mentioned under SCOTLAND (*History*). The chief modern authorities

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are: Cook's *History of the Reformation* and *History of the Church of Scotland*; Cunningham's *Church History of Scotland*; Grub's *Ecclesiastical History of Scotland*.

SCOTLAND, ROYAL ARMS OF: heraldic device officially pertaining to the sovereigns of Scotland. The arms of Scotland are: Or, a lion rampant gules, armed and langued azure, within a double tressure flory counter-flory of fleurs-de-lis of the second. Supporters—Two unicorns argent armed maned and unguled or, gorged with open crowns, with chains affixed thereto, and reflexed over the back of the last. Crest—A lion sejant affronté



Royal Arms of Scotland, previous to the Union.

gules crowned or, holding in the dexter paw a sword, and in the sinister a sceptre, both erect proper.

The lion is first seen on the seal of Alexander II., and the tressure on that of Alexander III. The unicorn supporters do not appear on any of the royal seals of Scotland till the time of Queen Mary, on whose first Great Seal (1550) they are represented as chained and gorged with crowns. They were, however, sculptured on Melrose Abbey as early as 1505.

In 1603, in consequence of the union of the crowns of England and Scotland, the Scottish arms came to be quartered with those of England and Ireland, while one of the English lions was adopted as a supporter. See GREAT BRITAIN, ROYAL ARMS OF.

## SCOTODINIA—SCOTT.

SCOTODINIA, n. *skōtō-dīn'ē-ă* [Gr.—from *skōtōs*, darkness, obscurity; *dinos*, giddiness]: in *med.*, a disease exhibiting giddiness with imperfect vision.

SCOTOGRAPH, n. *skōtō-grāf* [Gr. *skōtōs*, darkness; *graphō*, I write]: an instrument to enable one to write in the dark, or to enable one who is blind to write.

SCOTOMA, n. *skō-tō'mă*, SCOTOMATA, n. plu. -*mă-tă* [Gr. *skotōmă*, giddiness; *skōtōs*, darkness]: in *med.*, a fixed dark spot or gap in the field of vision; giddiness with dimness of sight.

SCOTT, *skōt*, CHARLES: soldier: 1733–1813, Oct. 22; b. Cumberland co., Va. He held a minor office in Brad-dock's army, raised the first company s. of the James river for the revolutionary war, was promoted col. 1776, brig. gen. 1777; served in N. J. and at Stony Point, was taken prisoner at Charleston 1780, and was held till near the close of the war. He removed to Ky. 1785, rendered valuable service in conflicts with Indians; a town and a county received his name; and he was gov. of the state 1808–12.

SCOTT, DAVID: Scottish painter: 1806, Oct. 10 (or 12) —1849, Mar. 5; b. Edinburgh. He assisted his father, a landscape-engraver; but his deep, stern, sombre genius soon turned toward painting. The first production that he ventured to send to the Brit. Institution, *Lot and His Daughters Fleeing from the Cities of the Plain*, was returned as too large; but S. was too ‘imperiously original’ to take advice, and went on courageously painting pictures which, it has been said, ‘would have required a hall for their exhibition, and which the public would neither admire nor buy.’ In 1831 he exhibited the *Monograms of Man*, a series of singularly suggestive sketches; and the first of his illustrations to Coleridge’s *Ancient Mariner*, almost equal to the poem itself in weird and vivid beauty. In 1832 he produced, with other pictures, *Sarpedon Carried by Sleep and Death*, a very fine work; in 1838, *Ariel and Caliban*, and the *Alchymist*, two of his best efforts in execu-tion. 1840–43 his chief productions were *Philoctetes*, *Queen Elizabeth in the Globe Theatre*, *The Duke of Gloucester Taken into the Water-gate of Calais*, *Silenus Praising Wine*, *Rich-ard III.*; illustrations (40 in number) of *The Pilgrim’s Progress*, in which, as in those of *The Ancient Mariner*, he rivals the genius of the author whom he illustrates. In 1847 he produced the masterpiece of his whole career, *Vasco da Gama Encountering the Spirit of the Cape* (Cape of Good Hope, earlier known as Cape of Storms). But S., always delicate, was now exhausted; and died in Edinburgh, when fame was beginning to encircle his name.—See *Memoir* by his bro.. W. B. Scott (1850).

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SCOTT, *sköt*, Sir GEORGE GILBERT: 1811-78; b. Gawcott, near Buckingham, England: ecclesiastical architect. His father was a rector in the English Church, and his grandfather was Thomas S., the commentator. After four years' apprenticeship with the architect Edmeston, he began business with a fellow-pupil, Moffat, and built a number of union work-houses and a church, all in the prevailing inartistic styles. In 1839 he awoke to the merit and spirit of mediæval architecture, on reading some writings of Pugin and publications of the Camden Soc. He built soon afterward the Martyrs' Memorial at Oxford (1840), inspired by 13th c. crosses in honor of Queen Eleanor. The success of this made him the leading eccles. architect of England; and his incessant activity included the building of many churches, and restoration of many more, including the cathedrals of Ely, Hereford, Lichfield, Salisbury, Chichester, Durham, St. Davids, St. Asaph, Chester, Gloucester, Ripon, Worcester, Exeter, Rochester, besides the abbeys of Westminster, St. Albans, etc. He also built the noble Lutheran church and the town-house in Hamburg. In 1862-3 he designed and constructed the Albert Memorial; and was knighted. Notwithstanding his protest against classical styles, he was architect of the new govt. offices, the India, foreign, home, and colonial. Other works by him were the Midland railway terminus and hotel, besides many private houses. His genius is regarded as less original than studious and painstaking. Besides many articles and reports, during his life, his many lectures as prof. of arch. in the Royal Acad. were published after his death; also *Domestic Architecture*, and *Personal and Professional Recollections* (1879), edited by his son. He was buried in the nave of Westminster Abbey.

SCOTT, GUSTAVUS HALL: naval officer: 1812, June 13—1882, Mar. 23; b. Fairfax co., Va. When 16 years of age he became midshipman in the U. S. navy; served in the West Indies, and 1839 in the Seminole war; was connected with the Pacific squadron 1852, and was light-house inspector 1858-60. He remained loyal to the Union, and served with credit at the James river, and at various points on the Atlantic coast, during the civil war. He was again light-house inspector 1869-71; and 1873, till his retirement on account of age, 1874, was in command of the n. Atlantic squadron. He was promoted captain 1863, commodore 1869, and rear-admiral 1873. He died at Washington.

SCOTT, JOHN: see ELDON, Baron.

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SCOTT, JOHN MORIN: 1730-84, Sep. 14; b. New York; descended from a noble family of Ancram, Scotland. He graduated from Yale College 1746, became a lawyer, was prominent in founding the order of the Sons of Liberty, was a defeated candidate for the continental congress 1774, but was a member of the general committee of New York and of the provincial congress 1775. He became brig.gen. 1776, and served at the battle of Long Island, but resigned his commission the following year; was sec. of state for N. Y. 1777-79, and a member of congress 1780-83. He died at New York.

SCOTT, Sir MICHAEL: see SCOT, MICHAEL.

SCOTT, THOMAS, D.D.: 1747, Feb. 16—1821, Apr. 16; b. Braycroft, Lincolnshire, England: biblical commentator. For nine years he was a farm-laborer. After ordination, he was curate of Weston Underwood, and in 1780-85 of Olney, succeeding John Newton, whose writings converted S. to Calvinism, a change narrated in his book *The Force of Truth* (1779), which, in its turn, converted Henry Kirke White. He was chaplain and lecturer of Lock Hospital, London, 1785-1801, after which he was vicar of Aston Sandford till his death. His well-known chief work, *A Family Bible with Notes*, 5 vols. (1788-92)—not critical or learned, but devout and practical—passed through numerous editions, in Britain and this country, numbering 100,000 copies to 1855. Other works were: *Essays on the Most Important Subjects in Religion* (1793); *Scripture Doctrine of Civil Government* (1792); *Warrant and Nature of Faith Considered* (1798); *Signs of the Times* (1799); *Chronological Tables of the Bible* (1811); *Remarks on the Refutation of Calvinism by the Bishop of Lincoln* (1811); *Treatise on Growth in Grace*; and numerous sermons. His son edited his complete works 1823, and published his life 1822.

SCOTT, THOMAS ALEXANDER: railroad manager: 1824, Dec. 28—1881, May 21; b. Loudon, Penn. He was educated at the common schools; was clerk in country stores; and 1841, Aug. 1, became clerk to Maj. Patton, state road toll-collector, Columbia, Penn. Six years later he was appointed chief clerk to the toll-collector of Philadelphia. In 1850 he became connected with the Pennsylvania railroad, then in process of construction; was appointed supt. of the w. division of this road 1852, 1858 became gen. supt., and 1859 was elected vice-pres. His brilliant management of the road attracted general attention. During the civil war he rendered invaluable services to the country in organizing and perfecting a wonderfully efficient system of transportation of govt. troops. He was a staff-officer to Gov. Curtin, of Penn.; was commissioned col.; was for some time in charge of govt. railroads and telegraphs; and 1861 was asst. sec. of war. He developed the Texas Pacific railroad system, and was its pres. for several years; was connected with other prominent roads; and was pres. of the Pennsylvania railroad 1874-80, resigning in the latter year on account of ill health. After travelling extensively in Europe and the East, he returned to Penn., and died at Darby.

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SCOTT, Sir WALTER: 1771, Aug. 15—1832, Sep. 21; b. Edinburgh; fourth child of Walter Scott, writer to the signet in Edinburgh; of the old Border family, the Scotts of Harden, offshoot from the house of Buccleuch. Though he matured into a man of robust health, and of strength nearly herculean, as a child he was feeble and sickly, and very early he was smitten with a lameness which remained through life. His childhood was passed mostly at Sandyknowe, the farm of his grandfather, in Roxburghshire. Here the foundations of his mind were laid; and his early and delighted familiarity with the ballads and legends then floating over all that part of the country probably did more than any other influence to determine the sphere and modes of his literary activity. Between 1779 and 83 he attended the High School of Edinburgh, where, with occasional flashes of talent, he shone considerably more on the play-ground as a bold, high-spirited, and indomitable little fellow, with an odd turn for story-telling, than he did within as a student. In 1783 he went to the university, and remained three years—as it seemed, not greatly to his advantage. Afterward, in the height of his fame, he was wont to speak with deep regret of his neglect of his early opportunities. But though leaving college but scantily furnished with the knowledge formally taught there, in a desultory way of his own he had been hiving stores of valuable though unassorted information. From earliest childhood, he was an insatiable reader; and his memory was of extraordinary range and tenacity. Of Latin, he knew little, of Greek less; but a serviceable though somewhat inexact knowledge of French, Italian, Spanish, and German he had acquired, and he retained. On the whole, for his special purposes, his education was perhaps as available as if he had been the pride of all his preceptors. In 1786 he was articled apprentice to his father. On the completion of his apprenticeship, 1790, he studied law, and was called to the bar 1792. In his profession he had fair success, and 1797 he was married to Charlotte Margaret Carpenter, of French birth and parentage. Toward the end of 1799, through the interest of his friends Lord Melville and the Duke of Buccleuch, he was made sheriff-depute of Selkirkshire, an appointment which brought him £300 a year, with not very much to do for it. Meantime, in a tentative and intermittent way, his leisure had been occupied with literature, which more and more announced itself as the main business of his life. His first publication, a translation of Bürger's ballads, *Lenore* and *The Wild Huntsman*, was issued 1796. In 1799 appeared his translation of Goethe's drama of *Goetz von Berlichingen*; and in the year following he wrote the fine ballads, *Glenfinlas*, the *Eve of St. John*, and the *Grey Brother*. The year 1802 gave to the world the first two volumes of his *Border Minstrelsy*, followed 1803 by the final volume. This work, the fruit of those 'raids'—as he called them—over the Border counties, in which he had been wont to spend his vacations, was favorably received, and at once won for him a prominent place among literary men. In 1804 he issued an edition of the old poem *Sir Tristrem*, admirably

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edited and elucidated by valuable dissertations. Meantime *The Lay of the Last Minstrel* had been in progress, and by its publication, 1805, S. became the most popular author of his day. During the next ten years, besides a mass of miscellaneous work, the most important items of which were elaborate editions of Dryden (1808) and of Swift (1814), including in each case a Life, he produced the poems *Marmion* (1808), *The Lady of the Lake* (1810), *The Vision of Don Roderick* (1811), *Rokeby* (1813), *The Bridal of Triermain*, anonymously published (1813), *The Lord of the Isles*, and *The Field of Waterloo*. The enthusiasm with which the earlier of these works were received somewhat began to abate as the series proceeded. The charm of novelty was no longer felt; moreover, a deterioration in quality is not in the later poems to be denied; and in the bold outburst of Byron, with his deeper vein of sentiment and concentrated energy of passion, a formidable rival had appeared. All this S. distinctly noted, and after what he felt to be the comparative failure of *The Lord of the Isles*, in 1815, he published no more poetry except the anonymous *Harold the Dauntless* (1817). But already in *Waverley*, which appeared without his name 1814, he had achieved the first of a new and more splendid series of triumphs. *Guy Mannering*, *The Antiquary*, *The Black Dwarf*, *Old Mortality*, *Rob Roy*, and *The Heart of Midlothian* rapidly followed; and the 'Great Unknown,' as he was called (whom yet every one could very well guess to be no other than Walter S.), became the favorite of the hour. The rest of the famous series, known as the *Waverley Novels*, need not be mentioned in detail. From this time, for some years, S. stood on such a pinnacle of fame and brilliant social prosperity as no other British man of letters has ever nearly approached. He resided chiefly at Abbotsford, the 'romance in stone' that he had built in the Border country which he loved; and thither, as 'Pilgrims of his Genius,' summer after summer repaired crowds of the noble and the distinguished, to partake the princely hospitalities of a man whom they found as delightful in the easy intercourse of his home as they had found him in his writings. In 1820, to set a seal on all this distinction, a baronetcy was bestowed on him as a special mark of the royal favor. But the stately fabric of his fortunes, secure as it seemed, was in secret built on the shifting sands of commercial speculation, and in the disastrous crisis of 1826 a huge ruin smote it. In 1805 S.'s income, as calculated by his biographer, was nigh £1,000 a year, irrespective of what literature might bring him; a competency shortly, by his appointment to a clerkship of the court of session, to have an increment at first of £800, subsequently of £1,300. After the publication of *Waverley* (1814), his income from authorship was greatly enlarged. But what was ample for all prosaic needs seemed poor to his imagination, with its fond and glittering dreams. Already some such vision as at Abbotsford was afterward realized, flitted before his mind's eye, and it was the darling ambition of his heart to re-create and leave behind him, in the founding of a family, some image of the olden glories

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which were the life of his literary inspirations. In 1805, lured by the prospect of profit, and without the knowledge of his friends, he joined James Ballantyne, an old school-fellow, in the establishment of a large printing business in Edinburgh. To this, about 1810, a publishing business was added, under the nominal conduct of John Ballantyne, brother of James; S., in the new adventure, becoming as before a partner. Gradually the affairs of the two firms became complicated with those of the great house of Constable & Co., who were in further complication with the London house of Hurst & Robinson, in whose sudden collapse 1826 S. found himself one forenoon a bankrupt, with personal liabilities to the extent of something like £150,000.

‘In the reproof of chance  
Lies the true proof of men’—

and now, in this challenge of adverse fate, S.’s manhood and proud integrity were nobly proved. With his creditors, composition would have been easy; but this usual course he disdained. ‘God granting me time and health,’ he said, he would owe no man a penny. And somewhat declined as he now was from the first vigor and elasticity of his strength, he set himself by the labor of his pen to liquidate this enormous debt.

Breaking up his establishment at Abbotsford, where the wife whom he loved lay dying, he hired a lodging in Edinburgh, and there for some years, with stern and unfaltering resolution, he toiled at his prodigious task. The stream of novels flowed as formerly; a *History of Napoleon*, in eight volumes, was undertaken and completed, with much other miscellaneous work; and within two years S. had realized for his creditors the amazing sum of nearly £40,000. A new and annotated edition of the novels was issued with immense success, and there seemed every prospect that, within a reasonable period, S. might again front the world, as he had pledged himself to do, not owing any man a penny. In this hope he toiled on; but the limits of endurance had been reached, and the springs of the out-worn brain broke in that stress of cruel and long-continued effort. In 1830 he was smitten down with paralysis, from which he never thoroughly rallied. It was hoped that the climate of Italy might benefit him; and the government placed at his disposal a frigate in which to proceed thither. But in Italy he pined for the home to which he returned only to die. At Abbotsford, 1832, Sep. 21, he died with his children round him and the murmur of the Tweed in his ears. On the 26th he was buried beside his wife in the old Abbey of Dryburgh.

In estimate of S. as an author, few words must suffice. As regards his poetry, there is now little difference of opinion. Its merits, though somewhat superficial, are very genuine, and continue to secure for it some portion of the popular favor with which it was at first received. Deficient in certain of the higher and deeper qualities, and in that exquisiteness of finish which we are of late accustomed to exact, it is admirable in its frank *abandon*, in its bold-

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ness and breadth of effect, its succession of clear pictures, its rapid, easy narrative, its unfailing life, spirit, vigorous and fiery movement. As a lyrist, S. specially excelled; and scattered hither and thither in his works are found little snatches of ballad and song scarcely surpassed in the language: The rank of S. as a writer of prose fiction, it is not so easy to fix with precision. So imposing to the mind is his immense *prestige* as a novelist, that even at this date it is difficult to *criticise* him coolly; but it is not without risk of awakening some under-murmur of dissent, that the absolute supremacy can now be assigned him which at one time, almost without question, was conceded as his due. Nor is the dissent without some ground of reason. S., with the artistic instinct granted him in largest measure, had little of the artistic conscience. Writing with the haste of the *improvvisor*, he could exercise over his work, as it proceeded, no jealous rigor of supervision; and on its appearance he was amply pleased with it if the public paid him handsomely. Hence he is an exceedingly irregular writer; many of his works are in structure lax and careless, and some of the very greatest of them are disgraced by occasional infusions of obviously inferior matter. Yet, all reasonable deductions made, it may be doubtful whether in mass and stature he is quite reached by any other novelist who could be mentioned. To class him, or even speak of him, with Shakespeare, is absurd; but it is scarcely absurd perhaps to say that, *since* Shakespeare, to no British man has such wealth in this kind been intrusted. If, as we believe, the final test of greatness in this field be the power to vitalize character, to enrich our experience by imaginative contact with beings ever after more intimately distinct and real for us than the men with whom we daily shake hands, very few writers can be held to surpass Scott. Further, he invented the historical novel, and in doing so created a distinct literature, brought life into our conceptions of the past, and revolutionized our methods of writing history itself by a vivid infusion into them of pictur-esque and imaginative elements. On his *Scotch* novels his fame most securely rests; the others being in general obviously inferior. S.'s was essentially a great, sagacious, *practical* intelligence; on the speculative side he was defective.—See Lockhart's *Life of Sir Walter S.* (1837); and *Life* by Hutton (1878).

SCOTT, WILLIAM; see STOWELL, Lord.

SCOTT, WINFIELD: general: 1786, Jan. 13—1866, May 29; b. Petersburg, Va.: of Scottish ancestry. He was educated at William and Mary College, and studied law; but 1808, having a genius for military pursuits, he was appointed capt. of light artillery in Gen. Wilkinson's division, stationed at Baton Rouge, La.; but was suspended for having accused his general of complicity with the conspiracy of Aaron Burr. At the commencement of the war of 1812, he was appointed lieut.col., and sent to the Canadian frontier. He crossed with his regt. at Queenston Heights, where the American troops were at first successful; but on the British receiving reinforcements, they

## SCOTT.

were repulsed with heavy loss, and S. was taken prisoner. The following year, having been exchanged, he was appointed adjt.gen., and was wounded by the explosion which followed the assault on Fort George. In 1814, as brig.gen., he established a camp of instruction, and from April till July drilled his raw levies in the French tactics with such effect that July 3 he took Fort Erie, opposite Buffalo, by assault; and on the 5th fought a sharp drawn battle at Chippewa, and 20 days later the famous frontier battle of Lundy's Lane, in which he had two horses killed under him, and was twice wounded, the last time severely. He was raised to the rank of maj.gen.; and compiled the General Regulations of the Army, and translated and adapted from the French the system of Infantry Tactics, which was afterward the text-book of the U. S. army. In the Indian hostilities of the American frontier, in the excitement attending the threat of nullification in S. C., and in the Seminole war, Gen. S. manifested those qualities of wisdom and moderation which made him rather a pacificator than a warrior. During the Canadian revolt 1837-8, he showed great tact in allaying the excited passions of the frontier. In 1841 he was appointed commander-in-chief of the U. S. army, and 1846 directed the military operations in the war against Mexico. Taking the field in person, he, 1847, Mar. 9, landed 12,000 men at Vera Cruz, and invested and bombarded the city, which capitulated on the 26th. Apr. 18 he carried the heights of Cerro Gordo, on the 19th he took Jalapa, on the 22d Perote, and May 15 Puebla, where, owing to his heavy losses, chiefly by diseases incident to the climate, he was obliged to wait for reinforcements. Aug. 10 he advanced, with 10,780 men, to encounter the larger forces and strong positions of Gen. Santa Anna. He turned El Peñon, and won the brilliant victories of Contreras and Churubusco. Santa Anna entered upon negotiations only to gain time and strengthen his defenses. These were followed by the sharp and sanguinary battles of Molino del Rey and Churubusco, Sep. 8, strong positions skillfully and bravely defended by superior numbers; and on the 14th S. entered the city of Mexico at the head of less than 8,000 soldiers. Peace was negotiated with the cession of New Mexico and California to the United States, and the victorious general was welcomed home with the liveliest demonstrations.—In 1852 Gen. S. was the candidate of the whig party for the presidency, but was defeated by one of his subordinate officers, Gen. Franklin Pierce. In 1855 was created for him the office of lieut.gen. At the beginning of the war of secession 1861, he foresaw more than many others its extent and serious character, and advised the calling out a much larger force than was first brought into the field. He had even suggested the advisability of allowing the 'wayward sisters to part in peace.' Age and growing infirmities compelled him 1861, Nov., to retire from active command. He subsequently visited Europe and published his *Memoirs* (8vo, 2 vols. New York 1864).

## SCOTTISH LANGUAGE AND LITERATURE.

SCOTTISH LANGUAGE AND LITERATURE: term appropriated to denote the language and literature of the dialect of the English tongue in use north of the Tweed. As the Scots were originally Irish Celts who settled in the Western Highlands of Alban, the phrase ‘Scottish language’ ought to denote, and did originally denote, *Ersch*, or *Gaelic*; but the gradual extension of the authority of the Scottish kings, first over their Celtic neighbors the Picts, then over the Kymry or Cymry (q.v.) of Strathclyde, and the Angles of Lothian and the Merse, led to the name ‘Scottish’ being given to the language of the last of these; though, in reality, the true old ‘Scottish’—i.e., the Gaelic, the speech of Kenneth MacAlpin and Malcolm Canmore—is further removed from the ‘Scottish’ of Ramsay and Burns (which is a dialect of northern English) than the latter is from Russian or Sanskrit. On this point Dr. Murray remarks, in a scholarly paper, or rather treatise, in *Transactions of the Philological Soc.* for 1873, which is likely to become a standard authority on the subject: ‘Ethnologically speaking, the Lowland Scotch dialects are forms of the Angle, or English, as spoken by those northern members of the Angle, or English, race who became subjects of the king of the Scots. . . . More particularly they are forms of the Northumbrian or northern English—“the langage of the Northin lede”—which up to the war of independence was spoken as one language, from the Humber to the Forth, the Grampians, and the Moray Firth; but which, since the final renunciation of attempts upon the independence of the kingdom, has had a history and culture of its own, has been influenced by legal institutions, an ecclesiastical system, a foreign connection, and a national life, altogether distinct from those which have operated upon the same language on the southern side of the Border.’

Using, then, the term ‘Scottish’ to denote the dialect of English used north of the Tweed, and omitting all consideration of anything written in Celtic, we may divide the history of *Scottish literature* into two periods; the first extending from the date of the earliest composition to the union of England and Scotland under one king, the second from that time to the present day.

A well-known brief lament for the death of Alexander III. preserved by Wyntoun, and marked by considerable beauty and pathos, is generally supposed to be one of the earliest specimens of Scottish poetry which has come down to us. The first Scottish poet—in the proper sense of the word—was John Barbour (q.v.), archdeacon of Aberdeen, born in the first half of the 14th c., died 1395. His great work is the poem of *The Brus*, in which he celebrates the struggles and final victory of King Robert Bruce. Barbour is superior to any English writer of the same century, except Chaucer and Langland. His language is even purer English than that used by the great author of the *Canterbury Tales*.

The 15th c., during which England produced no poetical writer of eminence, was fertile in Scottish poets. First

## SCOTTISH LANGUAGE AND LITERATURE.

in rank, and scarcely inferior to any in genius, was James I., King of Scotland, author of *The Kingis Quhair*—i.e., The King's Quire or Book. Before James, in point of time, was Andrew Wyntoun, prior of Lochleven, who wrote a metrical chronicle. Another Scottish poet of this century was Henry the Minstrel, or Blind Harry (q.v.), whose poem on the life of Wallace, in a modernized text, was long a favorite in Scotland.

The closing years of the 15th c., and the first half of the 16th, were distinguished by poets of still higher name. Foremost is Willian Dunbar (q.v.), author of *The Thrissill and the Rois*, *The Goldyn Targe*, and many smaller poems, both serious and satirical, of high merit. Robert Henryson, schoolmaster of Dunfermline (died about 1506), wrote many poems; some classical, as the Testament of *Cresseid*, some wholly popular, as *Robene and Makyne*, the earliest known pastoral in the Scottish tongue. Gawin Douglas (q.v.), son of the Earl of Angus, and bp. of Dunkeld, was contemporary with Dunbar (about 1474–1522). He wrote several original poems, but his principal work is the translation in which he first gave ‘rude Scotland Virgil’s page.’ The last remarkable writer of this age is Sir David Lindsay (q.v.) (died 1555). The 16th c. produced also the first Scottish prose-writers. Among these are the anonymous author of *The Complaynt of Scotalnde* (edited 1873 by Dr. Murray); and John Bellenden (q.v.), translator of Boece’s *Scotorum Historiae* and of the first five books of Livy. [The Scottish Text Soc., which began to issue to its members 1883, was founded mainly in order to secure good texts of the poets named here, as also of the popular poetry of Scotland, the metrical romances, as *Sir Tristrem* (see THOMAS THE RHYMER), old Scottish prophecies, chronicles, folk-lore. David Laing’s editorial labors were most valuable and important in this department.]

With Lindsay ceased that succession of poets writing in the Scottish dialect which had continued without interruption from the time of Barbour. It was more than a century and a half before another made his appearance. Most of the scholars of that time wrote in Latin; but for one vernacular prose-work of great merit as a composition, *The History of the Reformatioun of Religioun within the Realme of Scotland*, we are indebted to the leader of that movement, John Knox (q.v.).

We close our account of this first period by the statement that till the period of the Reformation every Lowland Scot knew that his language was ‘Inglis,’ and the only one who did not speak of it as such was Gawin Douglas. The accession of King James to the crown of England was unpropitious to the vernacular literature of Scotland. The parliament still met at Edinburgh, but the capital had ceased to be the residence of a court, and the language began to be regarded as a vulgar dialect of the English. The best authors composed in the classic English of the south. In that language Drummond (q.v.) of Hawthornden wrote his verses, Abp. Spottiswood (q.v.) and Bp. Burnet

## SCOTTISH LANGUAGE AND LITERATURE.

their histories, and Abp. Leighton (q.v.) and Henry Scougal their theological works, so far as they were not in Latin.

It might have been expected that the union of the kingdoms, by which Scotland was deprived of a legislature of her own, would have soon ended the cultivation of the native literature; but the fact was otherwise. There was a strong popular prejudice against the Union, and this roused a deep feeling of nationality, apart from the old religious divisions. At this time appeared the first Scottish poet of true genius since the dark age of the country's literature set in—Allan Ramsay (q.v.), author of *The Gentle Shepherd*, pub. 1725. Ramsay had also the merit of preserving some of those songs and ballads which have since become so famous, but whose authors are quite unknown. How far these works are productions of an earlier age, and how far they are the composition of authors in the 18th c., has been keenly discussed. Reference may be made to *The Romantic Scottish Ballads* of Robert Chambers on one side, and to *The Lady Wardlaw Heresy* of Norval Clyne on the other.

To the deep attachment to the exiled line of kings cherished by a large party in Scotland, and to the interest awakened by the struggles in which this resulted, we owe the exquisite Jacobite songs.

While these feelings were dying away under the influence of the mild government of George III., the close of the century was made famous by the appearance of the most illustrious of Scottish poets. It is needless here to describe Robert Burns (q.v.). Admired by all ranks in Britain and the United States, he continues to be the chosen classic of the peasantry of the Scottish Lowlands. It is as an English writer that Sir Walter Scott (q.v.) is famous; but many of his lyrical pieces, and the dialogues in his novels, where the speakers use their own northern tongue, entitle him to be ranked as the last and greatest of Scottish writers.

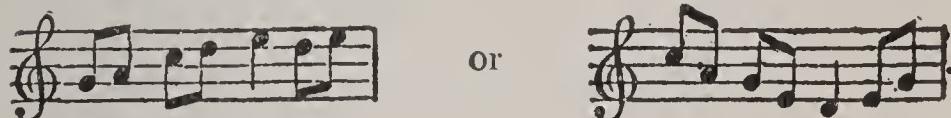
There is, however, no doubt that notwithstanding the fine and various manifestation of literary genius in the Scottish dialect during the 18th and 19th c., that dialect has for the last 200 years been going through a process of uninterrupted decay. The introduction of southern English as the standard or classic form of speech after the union of the crowns, and still more after the union of the parliaments, slowly but surely ruined the old Anglian tongue of Scotland, till most of its peculiarities disappeared, and a jargon grew up neither pure English nor pure Scotch, but of which nevertheless Scotchmen are curiously proud. Dr. Murray has happily characterized this jargon, in which Ramsay, Fergusson, Burns, Scott, Hogg, and Tannahill wrote, as 'fancy Scotch.'

See Craik's *History of English Literature and the English Language* (1864); David Irving's *History of Scottish Poetry* (Edin. 1861); Cosmo Innes's preface to his ed. of Barbour's *Brus* (1856); and Dr. J. M. Ross's *Early Scottish History and Literature* (1884).

## SCOTTISH MUSIC.

**SCOTTISH MUSIC:** famous class of national airs of peculiar style and structure, possessing a wild, dignified, strongly marked, and expressive character. They are generally considered to be of great antiquity; the few notes on which the oldest of them turn, and the character of the modulation, lead to the inference that they originated when the musical scale and musical instruments of the country were in a rude state; but there is a deficiency of evidence regarding their early history. No musical MS. of Scottish airs is now known to exist of older date than 1627; and we have no knowledge when and by whom the early Scottish melodies were composed, or how long they continued to be handed down traditionally from generation to generation. They may probably have been committed to notation in the 15th and 16th c.; and their disappearance is not wonderful, when we take into account, first, the strong measures resorted to, about 1530, by both civil and ecclesiastical authorities, to put down all ballads reflecting on the Rom. Cath. hierarchy, and afterward the ill-will shown by the dominant Presbyterians toward worldly amusements, including not a few entirely innocent. The most valuable of existing early collections of Scotch melodies is the Skene MS., in the Advocates' Library, noted down by Sir John Skene of Hallyards about 1630. It contains a number of native airs, mixed with some foreign dance-tunes—more than a hundred in all. Many of the Scotch melodies differ considerably from the more modern versions, presenting in general a ruder outline; but often exhibiting beauties which the changes that these airs have subsequently undergone have only tended to destroy.

Among the peculiarities which give character to the music of Scotland, most prominent is the prevalent omission of the fourth and seventh of the scale, and consequent absence of semitones, giving rise to such melodic forms as



Passages of this kind occur in all the airs of Scotland which have any claim to popularity, and form one of their most recognizable features. Another characteristic is the substitution of the descending for the ascending sixth and seventh in the minor scale, as at the beginning of the air called *Adew, Dundee*, in the Skene MS.—



A very prevalent course of modulation is an alternation between the major key and its relative minor, the melody thus ever keeping true to the diatonic scale of the principal key, without introduction of accidentals. An air will

## SCOTTISH—SCOUR.

often begin in the major key and end in the relative minor, or the reverse. The closing note is not necessarily the key-note, a peculiarity remarkable especially in the Highland airs, which, if in a major key, most frequently terminate in the second; if in a minor, on the seventh. Closes are found also on the third, fifth, and sixth. The peculiarities of modulation of the music of Scotland have something in common with the modes of ancient ecclesiastical music, to which it may be more correctly said to belong, than to the modern major and minor keys; and the avoidance of the fourth and seventh may have originated in the imperfection of the ancient wind-instruments; yet these peculiarities are not found in the national airs of other countries where ecclesiastical music may be supposed to have had the same influence, and the early instruments to have been equally imperfect.

Among the more modern printed collections of Scottish melodies with words, most important are George Thomson's collection, with symphonies and accompaniments by Pleyel, Kozeluch, Haydn, Beethoven, Hummel, and Weber (Vols. I.—IV. 1793–1805; V. 1826; VI. 1841), one distinguishing feature of which was the appearance of Burns's words conjoined with the old melodies of the country; and a more recent collection in 3 vols., published by Messrs. Wood & Co., and edited, with historical, biographical, and critical notes, by G. F. Graham (1848–9).

On the subject of Scottish music generally, reference is made to Dauney's *Ancient Scottish Melodies, with Introductory Inquiry* (Edin. 1838).

SCOTTISH, SCOTTICISM: see under SCOT.

SCOTUS: see DUNS SCOTUS: SCHOLASTICISM.

SCOUGAL, *skō'gal*, HENRY: theologian: 1650–78; b. Salton, Scotland; son of Bp. Patrick S. He studied at King's College, Aberdeen; was prof. of philosophy in that institution 1669; was pastor of a small congregation at Auchterless 1673; and the following year became prof. of divinity at Aberdeen. He published *The Life of God in the Soul of Man* (1671). This work was edited by Bp. Burnet, passed through several Eng. editions, and was translated into French. His collected works have been printed.

SCOUNDREL, n. *skoun'drēl* [possibly may be a corruption of an original form *scumbrel*—from O.E. *scumber*, to dung: comp. Scot. *scunner*, to shudder, to disgust: AS. *scunian*, to shun—*scoundrel*, according to Skeat, having the primary meaning of ‘a loathsome rascal’]: a low petty villain; a man without honor or virtue; an unprincipled fellow; a rascal: ADJ. low; base. SCOUN'DRELISM, n. -izm, the state of being a scoundrel; rascality.

SCOUR, v. *skowr* [Ger. *scheuern*, to scour: Dan. *skure*; O.It. *scurare*; OF. *escurer*, to scour, to cleanse: comp. Gael. *sgur*, to scour, to cleanse]: to clean or brighten by rubbing; to clean from grease or dirt, as articles of dress; to search thoroughly in order to take or drive away; to pass swiftly over, as water; to purge or be purged excessively; to clean thoroughly; to clear; to run with great eagerness

## SCOURGE=SCRAG.

and swiftness, as to *scour* the country; to rove; to range: N. a kind of diarrhea or dysentery in cattle. SCOUR'ING, imp.: N. a rubbing or cleansing; excessive looseness; the business of a scourer. SCOURED, pp. *skowrd*. SCOUR'ER, n. -ér, one who cleanses cloth, etc., as his trade; also, formerly, a footpad. SCOURING-DROPS, a mixture of oil of lemons with oil of turpentine used for removing grease-spots from silk.

SCOURGE, n. *skérj* [F. *escourgée*, a thong, a scourge: It. *scuriata*, a scourging—from L. *excoriārē*, to flay—from *ex*, off; *cerium*, skin: comp. Bret. *skourjez*, a whip, a rod: Gael. *sgiùrs*, to scourge, to whip]: a lash; a whip; an instrument of punishment or discipline; any severe national affliction or visitation, as a famine or a plague; the person or thing that afflicts: V. to lash with a whip or rod; to punish with severity; to chastise; to afflict greatly. SCOURG'ING, imp.: N. punishment with a scourge; chastisement. SCOURGED, pp. *skérjd*. SCOURG'ER, n. -ér, one who scourges.

SCOUT, n. *skowt* [OF. *escoute*, a spy—from OF. *escouter*; It. *ascoltare*; L. *auscultārē*, to listen]: one sent before an army, or in advance of settlers or explorers, to ascertain the presence or movements of an enemy; at *Oxford*, a manservant in the colleges; in *cricket*, a fielder: V. to move about privately to observe the positions and motions of an enemy.

SCOUT, v. *skowt* [Scot. *scout*, to pour forth any liquid forcibly: Icel. *skúta*, a taunt—closely allied to SHOOT (q.v.)]: to sneer at; to reject disdainfully; to treat with contempt. SCOUT'ING, imp. SCOUT'ED, pp.

SCOVEL, n. *skuv'él* [F. *écouillon*, a scovel—from L. *scopæ*, a broom: W. *ysgubell*, a mop—from *ysgub*, a broom]: a mop for sweeping a baker's oven.

SCOW, n. *skow* [Dan. *schouw*, a ferry-boat]: a large flat-bottomed boat, used as a lighter.

SCOWL, n. *skowl* [Dan. *skule*, to cast down the eyes: Dan. *skiul*; Icel. *skjól*, cover, shelter: AS. *sceól-eágē*, squint-eyed]: a deep angry frown by depressing the brows; a look of sullenness or gloomy anger; gloom: V. to wrinkle the brows in frowning; to assume a severe angry look; to look gloomy; to frown. SCOWL'ING, imp.: ADJ. sullen-looking; frowning. SCOWLED, pp. *skould*. SCOWL'ER, n. one who. SCOWL'INGLY, ad. -lī.

SCRABBLE, v. *skrāb'bl* [see *scrape*, of which *scrabble* is a frequentative: Bret. *scraba*; Dan. *skrabe*, to scrape or scratch]: to scrawl; in *O.E.*, to scratch with the nails; to scramble; to feel about with the hands.

SCRAG, n. *skrāg* [Fris. *skrog*, a scrag: Dan. *skrog*, the hull of a ship, a carcass: Norw. *skrekka*, to parch, to shrink: Low Ger. *schräkel*, a stunted, misshapen thing: Gael. *sgreag*, to shrivel]: a body which is nothing but skin and bones; anything lean and rough. SCRAG'GED, a. -gēd, or SCRAG'GY, a. -gi, lean and bony; rough; an irregular broken surface, as a *scraggy* hill; lean; rugged. SCRAG'-

## SCRAMBLE—SCRANTON.

**GEDNESS**, n. *-gēd-nēs*, or **SCRAG'GINESS**, n. *-gī-nēs*, the state or quality of being scragged or scraggy; leanness; roughness. **SCRAG'GILY**, ad. *-lī*. **SCRAG OF MUTTON**, the bony part of the neck of a sheep: see CRAG 2.

**SCRAMBLE**, v. *skrām'bl* [prov. Eng. *scramb*, to pull, or rake together with the hands: Sw. *skramla*, to clash]: to climb by using the hands and feet; to strive to obtain eagerly and tumultuously in a competition with others; to contend with others in catching or seizing any desired object: N. the act of climbing by the hands; an eager and tumultuous competition or contest with others for any desired object. **SCRAM'BLING**, imp.: N. act of one who scrambles. **SCRAMBLED**, pp. *skrām'bld*. **SCRAM'BLER**, n. *-blēr*, one who scrambles.

**SCRAN**, n. *skrān* [Icel. *skran*, refuse: Gael. *sgrath*, to peel, to pare; *sgrathan*, peelings, parings]: in *OE.* and *slang*, the peelings or parings; broken victuals. **SCRANNEL**, a. *skrān'nēl*, in *OE.*, pared or peeled: scraped; harsh. **SCRANNY**, a. *skrān'nī*, thin; poor; miserable.

**SCRANCH**, v. *skrūnsh* [of imitative origin: Dut. *schran-sen*, to scranch: Ger. *schranzen*, to eat greedily: Eng. *craunch*, *crunch*, *scrunch*]: to grind with the teeth, and with a crackling sound; to craunch.

**SCRANTON**, *skrān'ton*: city, cap. of Lackawanna co., Penn.; on the Lackawanna river, and on the Delaware and Hudson Canal Co.'s, the Delaware Lackawanna and Western, the New York Ontario and Western, and the New Jersey Central railroads; 18 m. n.e. of Wilkesbarre, 149 m. w.n.w. of New York, 167 m. n. of Philadelphia; 25 sq. m.; known as 'the electric city.' It is in the northern geological field or basin of the state and in the Wyoming region, and owes its rapid development to the rich anthracite coal-veins that underlie it, and to the industries dependent on coal mining. In 1889 there were 46 mines in the local district of S., which produced 8,939,621 long tons, out of a total in the state of 40,665,152 long or 45,544,970 short tons. Of the total product of the year, 7,823,694 tons were shipped directly from the mines, 588,535 tons were used by employés and sold to local trade, and 527,392 tons were used for heat and steam at the mines. The Wyoming region, of which S. is the centre, shipped (1820-59) 22,031,210 long tons; (1860-69) 42,288,823; (1870-79) 91,794,184; (1880-89) 164,077,794: total 320,192,011. The total shipments of the three trade regions 1820-89 aggregated 702,166,148 tons; hence the total of the Wyoming region was 45·60 per cent. of the whole shipments of the state. In 1880-89 the region shipped 164,077,794 tons out of a total of 315,523,013, or 52 per cent., valued at the mines at an average of \$1.61 per long ton, including all sizes sent to market. The quality, accessibility, and apparently large quantity of anthracite coal in and about the village of Slocum induced George Whitefield Scranton, then manufacturing iron in N. J., to remove thither and erect some furnaces for smelting ore with this coal. He settled in Slocum 1840 and with his brother Joseph Hand Scrant-

## SCRANTON.

ton (q.v.) erected a smelting plant the same year. This was the beginning of the great iron and steel industry of the city; and the enterprise of the two brothers was publicly acknowledged by changing the name of the village from Slocum to Scranton, and it was chartered as a city 1856. In 1890 more than 50,000 hands were employed in various branches of coal mining, and more than \$4,000,000 were paid there monthly for wages by the large coal-carrying companies. An abundance of coal, lumber, and water, and adequate facilities for transportation, have given S. **high rank as a manufacturing city.** In 1880 \$4,470,631 were invested in manufacturing enterprises; 1900, more than \$19,000,000. The Board of Trade with its three branches and the citizens generally offer important inducements for the location of new industries, and the city govt. has fixed a nominal valuation for new manufacturing establishments—\$100 for the first 10 years. The principal industries besides coal mining 1900 were the manufacture of steel rails, stationary and hoisting engines, mining machinery, steam-boilers, locomotives, cars, steel car-wheels, electric motors, steel tubes, edge-tools, foundry products, brass goods in large variety, carriages, leather, stoves, woolen goods, silk fabrics, buttons, glass-works, cigars, and beer and ale.

S. was divided 1900 into 21 wards, also into two parts locally known as Hyde Park and Providence. It is attractively laid out, thoroughly drained, lighted with gas and elect., supplied with water from mountain brooks beyond the coal-measures, and has electric street railroads. In 1902 the bonded debt was \$742,000, floating debt \$171,225, sinking fund \$381,185, net debt \$532,040, assessed valuation of real property \$64,322,093, personal \$1,364,610; total valuation \$65,683,703, and tax-rate \$3.20 on \$100. There were (1890) 54 churches—denominationally, Meth. Episc. 11; Rom. Cath. 9; Bapt. 7; Presb. 6; Congl. 4; Calvinistic Meth. 3; Evang. Luth. 3; Prot. Episc. 3; Christian 2; and United Breth., Hebrew, Independent Luth., Primitive Meth., Ref. Episc., and Univ. each 1. Among the notable buildings are the Oral School for the Deaf, U. S. Post Office, Municipal Building, Co. Court house (cost \$250,000), new Co. Jail (cost \$200,000), Acad. of Music, State Armory, Moses Taylor Hospital, Free Public Library, St. Patrick's Cathedral, and the Home for the Friendless. More than 15,000 children are enrolled in the public schools, and the city owns school property valued at more than \$900,000. William Connell gave the city 20 acres of ground on the s. side for a public park, which had long been needed, and the city agreed to improve and maintain the park. There are many pretty squares and driveways. In 1902, Mar., there were 3 nat. banks (cap. \$650,000), 6 state banks (cap. of 3 reporting \$400,000), 1 trust and safe deposit company (cap. \$250,000), and 4 daily, 1 weekly, and 7 monthly publications. Pop. (1880) 45,850; (1890) 75,215; (1900) 102,026.

## SCRANTON—SCRAPE.

SCRANTON, *skrān'ton*, JOSEPH HAND: 1813, June 27—1872, June 6; b. Madison, Conn. After serving as a clerk in New Haven and managing business interests for some time in Ga., he removed to Penn. and settled in the Lackawanna valley, where with two brothers, George W. S., Selden F. S., and a brother-in-law, Joseph C. Platt, he established the coal and iron interests of the region, and practically founded the city which bears his name and which at the time of his death had about 50,000 inhabitants. He held the various positions of manager, supt., and pres. of the Lackawanna Iron and Coal Company, was a railroad pres., and was prominently connected with the banks and manufactures of the city. He died at Baden-Baden, Germany.—His brother GEORGE WHITEFIELD S. (1811, May 11—1861, Mar. 24; b. Madison, Conn.) removed to N. J. when 17 years of age, worked as a teamster, and afterward was clerk in a store; became an iron manufacturer 1839, and joined his brother Joseph H. S. 1840 in this business on the site of the present city of Scranton. He was for a long time pres. of the Cayuga and Susquehanna and the Lackawanna and Western railroads, and was a member of congress 1859–61.. He died at Scranton.

SCRAP, n. *skrăp* [Icel. *skrap*, scraps, trifles: Dan. *skrab*, refuse, rubbish (see SCRAPE 1)]: a small piece broken off or left over; a fragment; a short extract, as from an author; a print or small picture. SCRAPPY, a. *skrăp'pi*, consisting of scraps. SCRAP-BOOK, a bound blank-paper book for the preservation of short literary extracts and prints. SCRAP-IRON, cuttings and parings of ironwork, and other old and waste iron (usually malleable), collected to be worked anew in the puddling furnaces. The welding of small fragments of iron together gives greater strength than is found in large masses—the fibre being thus much more interwoven in every imaginable direction.

SCRAPE, v. *skrăp* [Norw. *skrapa*, to make a harsh sound, to grate; *skrauba*, to creak: Icel. *skrapa*, to creak or grate: Dut. *schrapen*, to scratch or scrape: Dan. *skrabe*, to scrape]: to rub or clean the surface of a thing with something rough, sharp, or edged; to collect or gather; to erase or rub out; to act on a surface so as to produce a grating noise; to play a violin badly; to make an awkward bow: N. a rubbing over with something that roughens or removes the surface; the effect produced by rubbing; an awkward bow. SCRAPING, imp. SCRAPED, pp. *skrăpt*. SCRAPER, n. *skrăp'pér*, a raised flat piece of iron placed at a door, on which to scrape shoes or boots in wet weather; any instrument for scraping; a sorry fiddler; a miser. SCRAPINGS, n. plu. *-pingz*, leavings gathered together. To SCRAPE TOGETHER, to collect by small gains or savings. To SCRAPE ACQUAINTANCE, to make one's self acquainted, as with a person; to curry favor—a phrase which arose from the practice of *scraping* with the one foot on the floor when bowing.

## SCRAPE—SCREAM.

**SCRAPE**, n. *skrāp* [see SCRAPE 1: Sw. *skrapa*, to reprimand: Norw. *skrapa*, to get on with difficulty]: a situation of difficulty, perplexity, or distress.

**SCRATCH**, n. *skrāch* [Dut. *krassen*, to scratch, to scrape: Dan. *kradse*; Sw. *kratsa*, to scrape: Icel. *krassa*, to scratch: F. *gratter*, to scratch]: a slight, rough surface-wound by rubbing with anything pointed or ragged; laceration with the nails; a slight, rough, lined mark on anything; a line across a prize-ring up to which the combatants are brought when they begin to box—hence, in *familiar language*, test, trial, or proof, appearance when expected; a calcareous earthy or stony substance which separates from sea-water and incrusts the bottoms and sides of salt-pans and boilers: V. to slightly mark or tear the surface of anything, as by the nails or by claws; to dig or excavate with the claws; to rub with the nails; to strike a horse's name out of the list of runners in a particular race. **SCRATCH'ING**, imp.: N. the act of one who scratches. **SCRATCHED**, pp. *skrācht*. **SCRATCHES**, n. plu. *skrāch'ēz*, chaps or ulcers between the heel and pastern-joint of a horse. To **SCRATCH OUT**, to erase; to rub out. To **BRING TO THE SCRATCH**, to bring to the test or proof of courage. To **COME UP TO THE SCRATCH**, to fight or prepare to fight—in allusion to the line scratched on the ground, at which the fighters must place their toes while they stand opposite each other waiting to begin the contest—see above. **SCRATCH RACE**, a race where any horse may run without restriction; an informal race; a boat-race where the crews are drawn by lot, as at *Cambridge*. **SCRATCH CREW**, a ship's crew gathered together at random without regard to character or qualifications. **SCRATCH-WIG**, a kind of small wig. **SCRATCH-WORK**, n., in *arch.*, a species of fresco, consisting of a colored plaster laid on the face of a building, etc., and covered with a white one, which being scratched through to any design, the colored one appears and forms the contrast. **OLD SCRATCH**, the devil; the house-demon of the North; hence, a mean, miserly old man.

**SCRAWL**, n. *skrawl* [perhaps a corruption of SCRABBLE, which see; comp. Dan. *kravle*, to scrawl]: bad or hasty writing: V. to write or draw hastily or imperfectly; to scribble. **SCRAWL'ING**, imp.: ADJ. writing illegibly. **SCRAWLED**, pp. *skrawld*. **SCRAWL'ER**, n. -ér, one who scrawls.

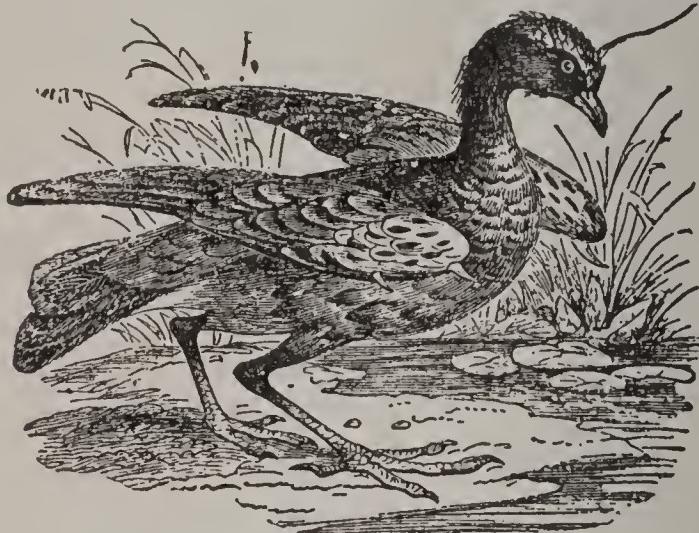
**SCRAY**, n. *skrā* [W. *ysgräen*, a sea-swallow]: the sea-swallow or tern.

**SCREAK**, v. *skrēk* [Dan. *skrige*, to screak: another form of CREAK]: synonymous with CREAK, which see.

**SCREAM**, n. *skrēm* [Sw. *skrāma*; Dan. *skræmme*, to scare: W. *ysgarm*, outcry]: a shrill quick cry, indicating sudden terror or pain; a shriek; the shrill cry of some birds: V. to cry out shrilly from sudden terror or pain. **SCREAM'ING**, imp.: ADJ. having the nature of a scream; shrill or sharp; causing screams of laughter, as a farce: N. the act of crying out with a shrill cry from fear or agony. **SCREAMED**, pp. *skrēmd*. **SCREAM'ER**, n. -ér, one who screams: in *slang*. something very great, as a lie.

## SCREAMER—SCREED.

**SCREAM'ER** (*Pulamedea*): genus of birds allied to the Jacanas (q.v.); named from its loud harsh cry. The bill is rather short, conical, curved at the extremity; there is a bare space around the eyes; the toes are long; each wing is furnished with two strong spurs. The HORNED S., or KAMICHI (*P. cornuta*), inhabits swamps in Brazil and Guiana, and feeds on the leaves and seeds of aquatic plants. It is of blackish-brown color, nearly as large as a turkey, and has somewhat the appearance of a gallinaceous bird. From the head, a little behind the bill, rises a long,



Horned Screamer (*Palamedea cornuta*).

slender, movable horn, of which no use has been conjectured. The spurs of the wings are supposed to be useful in defense against snakes and other enemies.—Closely allied to this genus is the genus *Chauna*, or *Opistolophus*, to which belongs the CHAUNA, or CRESTED S. (*C.* or *O. chavaria*), native of Brazil and Paraguay, whose head has no horn, but is adorned with erectile feathers. The plumage is mostly lead-colored and blackish. The wings are armed with spurs. It is very capable of domestication, and is sometimes reared with flocks of geese and turkeys, to defend them from vultures, as it is bold and powerful.

**SCREECH**, n. *skrēch* [Dan. *skrige*; Sw. *skrika*, to cry, to scream: W. *ysgrēch*, a scream: Gael. *sgreuch*, to screech]: a shrill loud cry, more acute and piercing than a scream; a harsh horrid cry: V. to utter a loud discordant and piercing cry, like that of the owl. **SCREECH'ING**, imp.: N. the act of one who screeches. **SCREECHED**, pp. *skrēcht*. **SCREECH-OWL**, the night-owl—so called from its peculiar, harsh, disagreeable cry.

**SCREED**, n. *skrēd* [AS. *screādian*, to shred; *screāde*, a strip. comp. Gael. *sgread*, a shriek, a screech]: in *Scot.*, any loud shrill sound; a rent; a strip torn off; a long harangue or tirade, generally of a disagreeable nature; a long discourse or recital in poetry or prose. **SCREED'ED**, a. entertained with a long harangue or tirade. **SCREEDS**, n. plu. *skrēdz*, in *plaster-work*, ledges of lime and hair, about 6 or 8 inches broad, dividing a surface about to be plastered into compartments, and forming gauges for the rest of the work; wooden rules for running moldings.

## SCREEN—SCREES.

SCREEN, n. *skrēn* [OF. *escran*; F. *écran*, a screen: Ger. *schranne*, a railing: Pol. *schronic*, to shelter, to screen: Bohem. *schraniiti*, to guard; *schrana*, a screen]: a light movable partition for protecting from cold or light, or for partially intercepting the heat of a fire; anything that shelters or affords concealment; a partition separating a portion; a partition dividing one part of a church from another (see below): a sort of drapery for concealment; a long riddle or sieve which wards off the coarser particles,



Builder's Screen.

and prevents them passing through, as in coal, gravel, sand, etc.: V. to shelter; to conceal; to hide; to protect; to separate, as by a screen or riddle. SCREEN'ING, imp.: ADJ. sheltering; protecting; sifting, as coals from dross. SCREENED, pp. *skrēnd*. SCREEN'INGS, n. plu. -*īngz*, the refuse-matter left after sifting coals, ashes, etc. SCREENED COAL, coal separated from the dust and dross.—SYN. of 'screen, v.': to hide; cover; conceal; shelter; protect; defend; shield; secrete; sift; riddle.

SCREEN, in Architecture: partition of wood, stone, or metal work. It is frequent in great churches, where it shuts off chapels from the nave, separates the nave from the choir, and in many cases incloses the choir. Such screens are often much ornamented, the lower part being solid, and the upper very often perforated. The Rood-screen (see ROOD) is that on which most labor is usually bestowed. In England, many beautifully carved ancient screens in stone, enriched with pinnacles, niches, statues, etc., remain, e.g., at York, Lincoln, Durham, etc.; and specimens in wood, carved and painted, are common in parish churches. In France, the screen round the choir is sometimes the subject of beautiful sculptures, as at Amiens and Paris. In Halls (q.v.) there was usually a wooden screen at one end to separate the entrance-door and a passage from the hall. Over this was a gallery. The term 'Screen of Columns' is applied to an open detached colonnade.

SCREES, n. plu. *skrēz* [Scot. and prov. Eng.]: in geol., a talus; accumulations of loose stones at the base of a cliff or precipice.

## SCREEVE—SCREW.

SCREEVE, or SCREVE, v. *skrēv* [Ger. *schreiben*; Dut. *schrijven*; L. *scribērē*, to write: F. *écrivain*, a writer]: to write; to mark or brand with letters. SCREEVING, imp. *skrēv'īng*: N. marking or branding with letters. SCREEVED, pp. *skrēvd*.

SCREW, n. *skrō* [OF. *escroue*; Ger. *schraube*; Sw. *skruf*; Dan. *skrue*, a screw]: bolt or bar of metal or wood, generally of small size, with a spiral thread or ridge, called the exterior or *male screw*—a socket or tube with the spiral thread indented is called the interior or *female screw*—used for fastening; one of the mechanical powers, commonly called the *screw and nut* (see below); a mean niggardly person; a person who screws down prices disreputably; a jade, as applied to a horse: V. to turn or move by a screw; to press; to squeeze; to fasten with a screw; to deform by contortions, as the face; to oppress by exactions; to twist; to beat or take down prices disreputably. SCREW'ING, imp. SCREWED, pp. *skrōd*: ADJ. in *slang*, intoxicated. SCREW'-ER, n. -ér, one who screws. SCREW-BOLT, a bolt or short rod of iron with a screw at one end and a flat head at the other. SCREW-DRIVER, instrument resembling a blunt chisel for turning screws, so as to drive them in or draw them out. SCREW-JACK, a contrivance for raising great weights through short lifts by means of a screw, or by a combination of toothed wheels. SCREW-NAILS, screws with notched heads, much used by carpenters for fastening their work. SCREW-PILES, piles held firmly in the ground by a peculiar kind of screw at the lower extremities, used for supporting light-houses, etc. SCREW-PLATE, a thin plate of steel having a series of holes with internal screws, used for forming external or male screws on small bars of iron. SCREW-PRESS, a press in which the force is applied by means of a screw. SCREW-PROPELLER, shaft of iron furnished with broad spiral wings, fitted into the lower part of the stern of a ship, and made to revolve by steam, used in propelling a ship instead of paddles (see below). SCREW-STEAMER, a steamer propelled by a screw and not by paddle-wheels. SCREW-STONES, in *geol.*, a familiar name for the hollow siliceous casts of encrinite stems, frequently occurring in the cherts and rotten-stones of the carboniferous limestones, resembling the threads of a screw. SCREW-TAP, the cutter for forming internal screws. SCREW-VALVE, a stop-cock having a valve moved by a screw instead of a spigot. SCREW-WRENCH, wrench or lever for turning large screws (see below). SCREWING-MACHINE, a machine for forming screws. ENDLESS or PERPETUAL SCREW, a screw used to give motion to a toothed wheel. LAG SCREW, a bolt having a nut, a square shank, and a round head. MICROMETER SCREW, a screw with fine threads, used for the measurement of very small spaces. OLD SCREW, one who is mean and sparing in his payments, grudging at parting with any money. RIGHT-AND-LEFT SCREW, a screw of which the threads upon the opposite ends run in different directions. SCREW OF TOBACCO, a small twist of tobacco rolled up in paper. To SCREW DOWN, to fasten down by means of screws. To SCREW IN, to force in by turning or

## SCREW.

twisting. To SCREW OUT, to press out; to extort. To SCREW UP, to force; to bring by violent pressure. To PUT ON THE SCREW, to press for payment constantly; to exercise influence to attain a certain end. To PUT UNDER THE SCREW, to subject to a severe trial. A SCREW LOOSE, something wrong or amiss. MALE and FEMALE SCREWS, screws having the threads on the outside and inside respectively, the former fitting into the latter.

SCREW: one of the Mechanical Powers (q.v.), modification of the Inclined Plane (q.v.), as may be shown (fig. 1)



Fig. 1.

by wrapping a piece of paper in the form of an inclined plane round a cylinder. In the screw, the spiral line, formed by the length or slope of the plane, is raised up in a ridge, and a lever is attached for the purpose of working it, so that the S. is really a compound machine, combining the lever and the inclined plane. It may be used as an instrument for penetration, e.g., the auger, gimlet, etc., or for producing pressure, the latter being its most important application as a mechanical power. For this purpose, it is

made to work in a ‘female screw’ or *nut* (a hollow cylinder grooved on the inside so as to correspond to the threads of the S.); the nut is then firmly fixed in a massive frame (fig. 2), and the revolution within it of the S. causes the lower extremity of the S. to advance or recede. The principle of application is the same as that of an inclined plane pushed further and further under a heavy body so as to raise it up.

Now in the inclined plane, P, the

power or force, is to W, the weight raised or the pressure overcome, as the height of the plane to its base; i.e., in the screw, as the distance between two threads is to the circumference of the cylinder. But as the twist is not applied at the circumference of the cylinder directly, but by means of a lever, it follows that the power applied, P, is to W as the distance of two threads to the circumference described by P at the end of the lever. Hence the power of the S. is increased by diminishing the distance between the threads; but as this cannot be effected without weakening the instrument, there is an evident limit to the increase of power in this way. The power can be increased also by lengthening the lever; but the best mode is that proposed by Hunter (*Phil. Trans.*, XVII.), in which are employed two screws of different fineness, the coarser of them hollow and grooved, to act as a nut for the other. The outer and coarser S. is the one to which the power is applied by a lever, and it is adjusted in the manner before

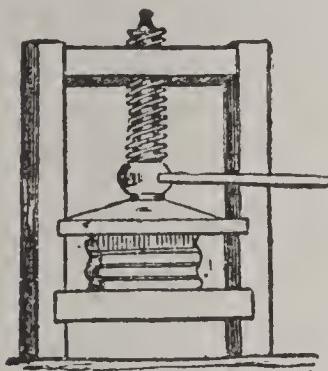


Fig. 2.

## SCREW PINE.

described; the inner is so fastened as to be capable of vertical motion only. When the outer S. is turned so as to move its extremity downward, the inner S. moves upward, but not to the same amount; thus, if the outer S. have 6 threads to the inch, and the inner one 7, one turn of the outer screw depresses it  $\frac{1}{6}$  of an inch; but as the inner one rises  $\frac{1}{7}$  of an inch, the whole descent of the point which produces pressure is only  $\frac{1}{6} - \frac{1}{7}$ , or  $\frac{1}{42}$  of an inch;

hence the pressure applied is 7 times greater than could be given by the outer, 6 times greater than could be given by the inner S., and equal to what would be given by a S. with 42 threads to the inch, with the same power applied. The advantage of Hunter's S. is that the threads may be of any thickness, and consequently each S. of any strength that may be desired, provided the difference be small enough. The S. is one of the most powerful of the mechanical powers, but the friction generated by it amounts to about one-third of the force applied.

In carpentry and structural mechanics the S. is used to an enormous extent for joining different parts of structures, and is familiar to everyone. Till 1836 screws were hand-made. At that time Thos. W. Harvey introduced machinery which did part of the work, and 1846 fully automatic machinery was introduced. Originally wood screws had blunt ends, and a hole had to be made for them even in soft wood. In 1836 Harvey constructed gimlet-pointed screws, but it was ten years before they were widely used. Mr. Harvey's son, Hayward A. Harvey, has in recent years invented improved machinery, on new principles, for the manufacture.

In mechanics of metals where the S. does not form its own matrix in which to be inserted, but where the hole has to have a thread specially cut within it, much confusion has been experienced by the lack of a standard thread. This desirable factor has been to a great extent attained at present, largely through the efforts of Whitworth.

The nomenclature of screws is now very extensive. The inclination of the thread is called the pitch, and is defined by the number of threads to the inch or other unit of length; the direction of the twist is called right-handed if as in ordinary screws, or left-handed if the reverse; the cylindrical or entering S. is called the male, and the threaded aperture into which it enters is called the female S.—See also SCREW-PROPELLER.

SCREW PINE (*Pandanus*): genus of plants of nat. order *Pandanaceæ*, natives of the tropical parts of the east and of the South Sea Islands. Many are remarkable for their adventitious roots, with large cup-like sponges, which their branches send down to the ground, and which serve as props. Their leaves are sword-shaped, with spiny edges, and are spirally arranged in three rows. In general appearance, when unbranched, they resemble gigantic plants of the pine-apple, whence their popular name. *P. odoratissimus* is a widely diffused species; a spreading and branching tree 25 ft. high, much used in India for hedges,

## SCREW PINE.

though it occupies much ground. In s. India, it is called the Kaldera Bush. It grows readily in a poor soil, and is one of the first plants to appear on newly-formed islands in the Pacific. The male flowers are in long spikes, the female flowers in shorter branches. The flowers are frequently gathered before expanding, and boiled with meat. Their delightful and very powerful fragrance has made the plant a favorite everywhere, and it is the subject of continual allusions in Sanskrit poetry, under the name *Ketaka*. Oil impregnated with the odor of the flowers, and the distilled water of them, are highly esteemed East Indian perfumes. The seeds are eatable; and the fleshy part of the drupes, which grow together in large heads, is



Screw Pine (*Pandanus odoratissimus*).

eaten in times of scarcity, as is the soft white base of the leaves. The terminal buds are eaten, like those of palms. The spongy and juicy branches are cut into small pieces as food for cattle. The leaves are used for thatching, and for making a kind of umbrella common in India, and their tough longitudinal fibres for making mats and cordage. The roots are spindle-shaped, composed of tough fibres; they are therefore split up by basket-makers, and used for tying their work.—More valuable, however, as a fibrous plant is an allied species, *P. sativus* or *P. Vacoa*, the VACOA of Mauritius which, if permitted, grows to a height of about 30 ft., but from continual cropping of its leaves, is usually dwarfed to six or ten ft. The fibres of its leaves are used for making the *Vacoa bags*, a considerable article of export from Mauritius, rivalling in cheapness and usefulness the Gunny Bags of India. The leaves are cut every second year, and each plant yields enough to make two large bags. Immediately on being cut off, the leaves are split into fillets, three or four ft. long, nearly an inch broad at the base, but tapering to a point. One of these will support a bag of sugar, of about 140 lbs., without breaking. The fibrous aerial roots of the Vacoa are used for making paint-brushes for coarse purposes.

## SCREW-PROPELLER.

SCREW-PROPEL'LER, or SCREW, in Marine Engineering: a Screw (q.v.) with the narrow thread exaggerated into a broad, thin plate, and the cylinder diminished to a

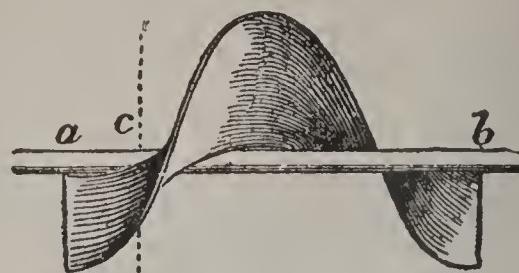


Fig. 1.

mere spindle. One complete turn of such a S. is shown in Fig. 1. Now, if a S. of this form were turned round in an unyielding substance, as wood, it would for each turn advance as much as the centre of the blade (or thread) had moved along the spindle in forming the screw, i.e., the distance  $ab$ . If, on the other hand, the S. itself were prevented from moving longitudinally, and the piece of wood *not* fixed, the latter would be compelled to advance along the S. the same distance  $ab$ . When the S. is fixed beneath a ship, and made to revolve in the water, the case lies between the two just supposed, the S. moves forward, and with it the ship, and the water in which it has been working moves backward. The backward motion should only be small proportionately, and the ratio between it and the sum of the backward motion of the water and the forward motion of the ship is called the *slip*, which in well-designed vessels has a value of from 0.1 to 0.25.

It is obvious also that on the same spindle there may be more than one blade, provided that all the blades have the same pitch or rate of progression along the spindle (in Fig. 1,  $ab$  is the *pitch* of the screw). Screws have thus been formed with two, three, four, and six blades or arms; but the usual form is two blades for ships-of-war, and three or four blades in the merchant-service.

If the S. be cut off before attaining the length  $ab$  of a whole convolution, as at  $c$ , the portion  $ac$  will still retain all the properties of the S. In the earlier attempts, screws were tried of the length of a whole convolution, or even two whole turns; but experiment has since shown that this length is a disadvantage. The best results are obtained when the sum of the lengths, measured parallel to the centre line of the shaft, of all the blades, is equal to about 0.4 of the pitch. This holds equally good for two, three, or four bladed propellers, so that if  $n$  equals the number of blades, then the length of one blade, or  $ac$  would be expressed by the equation  $ac = \frac{0.4 ab}{n}$ . A four-bladed S. of this kind, and of a form very generally used in merchant vessels, is shown in Fig. 2.

The following are the technical terms applied to the screw-propeller: The *shaft* is the cylindrical axis on which the S. revolves, and is the medium for communi-

## SCREW-PROPELLER.

cating to it the power of the engine; the *blade* is the thread of the S.; the *pitch*, the length of shaft on which the blade would make one complete turn; the *diameter* is

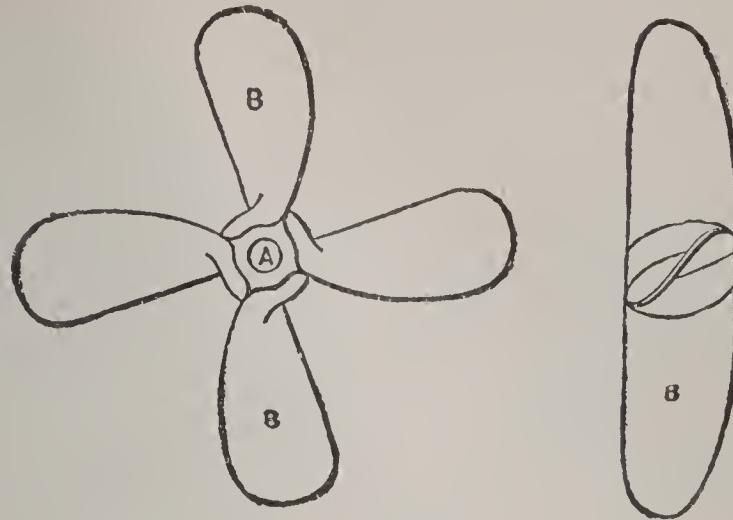


Fig. 2.

the distance between the tips of opposite blades; and the *length* is the distance from the front to the back edge of blade projected on a fore-and-aft plane.

The application of the S. to propulsion of a vessel is not new. In 1802, Dr. Shorter, English mechanician, produced motion by its agency; but his discovery was valueless, as the steam-engine had not then been practically applied to navigation. Those who first employed Watt's engine on board ship adopted the paddle-wheel, the success of which turned attention from the screw for nearly 30 years. At length, 1832, B. Woodcroft patented a screw-propeller with an increasing pitch; and four years later, F. P. Smith patented a S. making two whole turns, which he reduced, 1839, to one whole turn. In 1837, he and Capt. Ericsson, American inventor, brought the matter practically forward on the Thames, where a small screw-steamer 45 ft. long, 8 ft. broad, and of 27 inches draught, towed the *Toronto* of 630 tons against tide at  $4\frac{1}{2}$  knots an hour. In 1839, an American gentleman had the *Robert Stockton* built for him by Messrs. Laird, with which he reached America. The British admiralty, however, gave no countenance to the new propeller, until the success of the *Archimedes*, built 1838 (232 tons and 80 horse-power), which was exhibited at the principal ports, rendered opposition no longer possible. Meanwhile, 1838, James Lowe had shown that the length of the S. should not exceed  $\frac{1}{6}$  of the pitch; and after successive trials, the S. of the *Rattler* (admiralty experimental vessel) was cut down from 5 ft. 9 inches to 1 ft. 3 inches. These experiments established the S. as a rival to the paddle-wheel; and its advantage for ships of war became uncontested, as, from the entire submergence of the propeller, and consequent lowness of its engines in the ship, the chances of their injury from an enemy's shot were greatly reduced. It was found valuable also as an auxiliary in sailing-vessels. Its use for sea-going ships is now nearly universal.

## SCREW-PROPELLER.

Several varieties of S. have been introduced. In one long in use in the British navy, invented by R. Griffiths, the blades, instead of rising from a small *boss*, as in Fig. 2, spring from a hollow sphere occupying one-third the screw's diameter. This arrangement was adopted because experiment proved that the central portions of the blades of the ordinary S. absorb about 20 per cent. of the propelling power, while they produce little useful effect, from the fact that at that part (especially in screws of a coarse pitch) the blade is nearly in a line with the shaft, and acts at right angles on the water, causing a disturbance of only that portion on which the outer and more powerful end of the blade operates. The globe, on the other hand, revolves with little friction. A further improvement was effected by bending the tips of the blades a little over backward, so that the face of the blade striking the water was partly convex. The older propellers had blades which increased in width uniformly from boss to tip. These were found to create much vibration in the ship, and the 'leading' corner is therefore rounded away as shown in Fig. 2. This is done also in Griffith's propeller, but he probably carries the principle to excess in cutting away also the 'following' corner, and so lessening the effective surface of the blade. A propeller invented by Hirsch, and known by his name, has been successfully tried by the admiralty.

One difficulty in the use of the S. as an auxiliary in sailing-ships is that in a good wind the S. seriously impedes the sailing. To prevent this, various devices are resorted to. In some cases, the S. is disconnected from the shaft, and left to revolve freely; in others, as in most ships of war, it is disconnected and hoisted altogether out of the water by means of an iron framework worked above the S. in a sort of well. Messrs. Maudsley have patented a 'feathering-screw,' which, by a simple apparatus, can, when the steam power is not required, have the blades turned into a line with the ship's keel, and the S. (which must be two-bladed) fastened in a vertical position. When thus treated, the S. is out of danger, and forms no impediment to the ship's progress.

The usual position for the S. is immediately before the stern-post, the shaft on which it revolves passing, parallel to the keel, into the engine-room. Many vessels have been built, especially naval cruisers, with two screws, one under each quarter. These have independent action, and as one can be reversed while the other goes ahead, great steering-power is imparted; so much so, that vessel constructed on this principle are said to be able to turn in their own length. For a given power, a twin-screw vessel draws less water, owing to the lessened diameter of the propellers, than an ordinary screw-steamer. As the action of the S. depends on the comparative immobility of the water in which it acts, it is necessary, for development of its full power, that it should be completely immersed, and that there should be nearly two ft. of water above the top of the upper blade. It follows from this

## SCREW-PROPELLER.

that, *ceteris paribus*, the screw-vessel will draw more water than the paddle-steamer; for in large steamers the S. is 15 to 18 ft. in diameter: in the *Great Eastern* it was 24. Several of the new armored cruisers, or 'commerce destroyers,' projected or built about 1891 for the remodelled U.S. navy, are to be provided with triple screws, the third screw being placed between and below the other two and 15 ft. further aft. Each screw will be operated by a triple expansion engine, and may be worked independently of the others.

As to comparative advantage of the paddle and S.: under favorable circumstances, in ships of equal tonnage and power, there is little difference in speed or force. Before the wind, the paddle has a slight advantage; with the wind ahead, the resistance offered by the paddle-boxes transfers the advantage to the S. Fastened stern to stern, the screw-ship drags the paddle-ship; but fastened bow to bow, the same result is not found. This is to be attributed to the loss of power in a paddle-ship when not in progress (see PADDLE-WHEEL) rather than to any actual superiority of the S. In a long voyage, however, the gain is distinctly with the S.; because the weight of fuel borne at starting sinks the paddles too low in the water, and probably its exhaustion at the end of the voyage deprives them of their proper dip; whereas, with ordinary management, the S. will always be immersed. Again, rolling deprives the paddle of much power; while pitching deprives the S. of its proper matrix; but the balance of loss in tempestuous weather is in favor of the S. In men-of-war the S. allows a clear broadside for the guns. On the other hand, in comfort to passengers, the advantage is with the paddle; for the rapid revolution of the heavy S. on a shaft extending half the ship's length, produces a continuous and unpleasant vibration; while the lower position of the engines and S. gives the vessel a deep roll. For lakes and rivers, where the water is smooth and the voyage of only a few hours, paddles are best, especially so when the water becomes often shallow or is choked with weeds, which would soon clog the screw: also in such navigation the construction with paddle-wheels affords more facilities for handling freight.

In scientific language the motion of a vessel by means of a S. is said to be due to the forward reaction of the water in which the propeller revolves, upon the blades, and through them on the whole vessel. That this useful reaction may bear the largest possible ratio to the work done by the engine, it is essential that the form of the ship aft should be such as will secure that water shall always have free access to the forward side of the S. as the vessel goes along. Experiments show that if the propeller be worked, with a disk of the same diameter placed in front of it, the vessel will not move forward at all, though the power given out by the engines remains as before.

See STEAM-NAVIGATION ; STEAM-ENGINE.

## SCREW-WORM—SCREW-WRENCH.

**SCREW-WORM:** larva, or maggot, of a dipterous insect, *Lucilia macellarria*, found in all parts of the American continent; parasitic on man and animals. The mature insect is a little larger than *Musca domestica* (common house-fly); has a yellow head; 3 longitudinal dark lines on the thorax; abdomen yellowish-green. Though *Lucilia macellarria* is distributed throughout the United States, only in Texas is the S.-W. a serious evil. The insect deposits its eggs in wounds produced by whatever cause, as when cattle are gored or bitten, or torn by barbed wire, when they have undergone surgical operations; in short whenever the integument is injured: the eggs are deposited also in the natural openings of the animals' bodies: thus they are often found in the vulvæ of fresh cows. When hatched in wounds, the larvæ seem to attach themselves by their heads, and burrow under the skin. They grow steadily in size, making a hole in the flesh that grows larger day by day, and producing swelling and bleeding at the part. They attain full growth ( $\frac{5}{8}$  in.) in about a week. Then they leave their 'host' and go into the ground, where they pass into the pupa state, and come forth as flies in 9-12 days. But in the mean time other eggs are deposited in the wound, and if the worms are not killed, they penetrate deeper and deeper into the tissues.

**SCREW-WRENCH:** tool for grasping the flat sides of the heads of large screws, such as are used in engines and other large works. The heads are usually octagonal

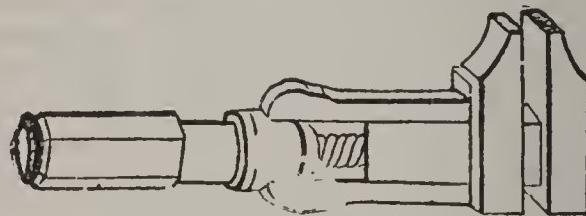


Fig. 1.

laterally, and the wrench is made of two portions like hammers sliding one upon the other (fig. 1), so that screw-heads can be grasped of different sizes, and the handle forms the lever by which they are turned round. The



Fig. 2.

screw-key (fig. 2) is only a more simple kind of wrench, which will act only on screws of two sizes, fitting the jaws at each end.

## SCRIBBLE—SCRIBE.

**SCRIBBLE**, v. *skrib'bl* [L. *scribērē*, to scratch marks on, to write: Ger. *schreibler*, a scribbler; *schreiben*, to write]: to write carelessly and illegibly; to scrawl; to fill with worthless writing: N. hasty or careless writing; a writing of little value. **SCRIBBLING**, imp. *-bling*: N. the act of writing hastily and badly. **SCRIBBED**, pp. *-bld*. **SCRIBBLER**, n. *-blér*, one who scribbles; a petty writer or author. **SCRIBBLINGLY**, ad. *-lī*. **SCRIBBLING-PAPER**, damaged or inferior paper—also outsides.

**SCRIBBLE**, v. *skrib'bl* [Sw. *skrubba*, to scratch; *skrubbel*, a wool-card: Ger. *schrabbeln*, to card wool]: to card or tear coarsely with a wire comb. **SCRIBBLING**, imp. *-bling*: N. the tearing or separating of wool preliminary to the final carding. **SCRIBBED**, pp. *-bld*. **SCRIBBLER**, n. *-blér*, in a *manufactory*, one who attends to the scribbling; also, the machine used in the operation (see SPINNING).

**SCRIBE**, n. *skrib* [F. *scribe*—from L. *scriba*, a scribe or clerk—from *scribo*, I write: It. *scriba*]: a clerk; a writer or secretary; an amanuensis; a copyist: among the *anc. Jews*, expounder of the law, and copyist of the same (see below).

**SCRIBE**, v. *skrib* [L. *scribērē*, to scratch marks on, to write]: among *carpenters*, to mark or fit by a rule or compasses; to fit the edge of one board to that of another, so that the fibres of the one may be at right angles to those of the other. **SCRIBING**, imp. *skrib'bing*: ADJ. applied to the edge of a board when fitted upon any surface: N. the act of fitting one piece of wood upon another so that the fibres of both may be at right angles to each other. **SCRIBED**, pp. *skribd*. **SCRIBER**, n. *-bér*, a sharp pointed tool used by joiners for drawing lines; a marking-awl. **SCRIBING-IRON**, an iron-pointed instr. for marking casks and logs.

**SCRIBE**, *skrib* (Heb. *Sof*—Gr. *Grammateus*, *Nomodidaskalos*): among the *Jews*, originally a kind of military officer, whose business appears to have been the recruiting and organizing of troops, the levying of war-taxes, and the like. At a later period, especially at the time of Christ, S. had come to designate a learned man, a doctor of the law. Christ himself recognizes the scribes as a legal authority (Matt. xxiii. 2); they were the preservers of traditions, and formed a kind of police in the Temple and synagogues, together with the high-priests; and the people revered them, or were expected to reverence them. They were found all over Palestine, and occupied the rank and profession of both lawyers and theologians. Their public field of action was thus probably threefold: they were either assessors of the Sanhedrim, or public teachers, or administrators and lawyers. Many of these teachers had special class-rooms somewhere in the Temple of Jerusalem, where the pupils destined to the calling of a rabbi sat at their feet. The calling of a S. being gratuitous, it was incumbent on every one of them to learn and to exercise some trade. Those scribes who were not eminent enough to rise to the higher branches of their profession, to enter the Sanhedrim, to be practical lawyers, or to hold schools of their own, occupied themselves in copy-

## SCRIBE—SCRIBNER.

ing the Book of the Law or the Prophets, in writing phylacteries, contracts, letters of divorce, and the like. Their social position was naturally in accordance with their talents and their importance. The apostles, mostly simple unlettered men, not learned enough to be scribes, are promised to become ‘scribes’ of the kingdom of God, etc. See PHARISEES: HALACHA: HAGGADA: MIDRASH: MISHNA: TALMUD.

SCRIBE, *skrēb*, AUGUSTIN EUGÈNE: French dramatic writer: 1791, Dec. 24—1861, Feb. 20; b. Paris; son of a wealthy silk-mercer. Educated for the legal profession, he soon deserted it for dramatic authorship, scarcely more, however, than dramatic editing and adapting. His first piece, *Les Dervis*, written in conjunction with Germain Delavigne (bro. of Casimir Delavigne), was played 1811. After 1816 his success was decided. Pieces, chiefly vaudevilles, from his pen followed one another with astonishing rapidity; and in such demand were they at the hand of theatrical managers, that S. established a sort of dramatic manufactory, in which numerous *collaborateurs* were constantly at work under his supervision. His plots lack force; his dialogue is light and tripping; he is without originality in dealing with character; and his style is devoid of merits other than those that gain transient popularity. S. perfectly knew both stage machinery and the tastes of the public. He amassed great wealth. In his dealing with brother-authors he was a model of literary honor and generosity—giving them credit for their unconscious aid, and often liberal payment in money. Several of his pieces have been adapted for the English stage. S. wrote also novels, and composed the *libretti* for some well-known operas, including *Masaniello*, *Fra Diavolo*, *Robert le Diable*, and *Les Huguenots*. He was admitted a member of the French Acad. 1834.

SCRIBNER, *skrib'ner*, CHARLES: publisher: 1821, Feb. 21—1871, Aug. 26; b. New York. He was educated at New York Univ., and at Princeton, graduating 1840. His health not suiting a professional life, he undertook publishing; the firm name was Baker & S., afterward Charles S. & Co., and continued after his death as S., Armstrong & Co., until 1878, when it became Charles Scribner's Sons. Coincident since 1857, Scribner & Welford is a separate firm importing books, and another, S. & Co., published *Scribner's Monthly*, which was sold to the Century Co. 1881, but revived 1887 by Charles S.'s Sons as *Scribner's Magazine*. Charles S. died at Lucerne, Switzerland. His son, John Blair S., represented the family in the publishing firm from 1871 until his death, 1879, since which the firm is composed of two other sons, Charles S. and Arthur H. S. The house has always ranked high in the extent and character of its publications, which include many works of biblical exegesis, ecclesiastical history, religious essays, and such philosophical works as those of Pres. McCosh.—JOHN BLAIR S. (1850-79), named after his mother's father, John I. Blair, the capitalist, was educated at Princeton, and died in his native city, New York.

## SCRIM—SCRIPTORIUM.

**SCRIM**, n. *skrīm* [comp. Ger. *schirm*, a screen, a shade]: a thin coarse cloth used for making window-curtains and for other purposes.

**SCRIM**, n. *skrīm* [ctym. doubtful; prob. for *scrimps*]: thin canvas glued on the inside of a panel to keep it from cracking or breaking; V. to grate; to creak.

**SCRIMER**, n. *skrī'mēr* [F. *escrimer*—from It. *schermire*, to fence]: in *OE.*, a fencing-master; a gladiator.

**SCRIMMAGE**, n. *skrim'āj*, or **SCRUMMAGE**, n. *skrūm'-āj* [F. *escarmouche*; It. *scaramuccia*, a skirmish]: an old spelling of SKIRMISH, which see; in modern slang, a general row or fight.

**SCRIMP**, v. *skrīmp* [Ger. *schrumpfen*; Dan. *krympe*, to shrink; W. *crimpio*, to crimp]: to shorten; to limit or straiten; to make too small: N. a niggard; a miser: ADJ. short; scanty. **SCRIMP'ING**, imp. **SCRIMPED**, pp. *skrimpt*. **SCRIMP'NESS**, n. shortness; scantiness.

**SCRINE**, n. *skrīn* [L. *scrinum*, a chest or box]: in *OE.* a secret repository; a shrine.

**SCRIP**, n. *skrīp* [Low Ger. *schart*; Fris. *skrap*, a pocket: Icel. *skreppa*; OF. *escharpe*, a wallet, a scrip]: the receptacle of what the beggar scrapes together; a small bag or wallet.

**SCRIP**, n. *skrīp* [L. *scriptum*; a writing—from *scribērē*, to write]: piece of paper containing writing: in *finance*, certificate (usually about the size and appearance of a bank-note) of a person's right to receive a share or shares in a railway or other joint-stock undertaking: collectively, the whole issue of such certificates. S. is issued when the party signs a contract of copartnery, and is retained by such party until an act of the legislature, or some other formality, establishes the company, and authorizes the opening of regular books for entering the names of shareholders and the transfer of stock. In many instances, S. is unauthorizedly sold, and made an object of speculation; the party to whom it was assigned, however, remains bound by the contract which he has subscribed, until relieved of his obligations by transfer in the company's books. S. is thus a provisional certificate of the right to share in interest, dividends, etc.—The term was a name for U. S. fractional currency during the civil war.

**SCRIPT**, n. *skrīpt* [L. *scriptum*, a writing]: type in the form of running letters in imitation of handwriting. **SCRIPTORY**, a. *skrip'tōr'-i*, written; not oral.

**SCRIPTORIUM**, n. *skrīp-tōr'-i-ūm* [L.—from *scriptor*, a writer—from *scriptus*, pp. of *scribo*, I write]: room in a monastery or abbey set apart for the writing or copying of manuscripts.

## SCRIPTURE—SCRIVENER'S PALSY.

SCRIPTURE, n. *skriptūr* or *-chūr* [L. *scriptūrā*, a writing—from *scribērē*, to write]: the sacred writings of the Bible; the Old and New Testaments; the Bible—used chiefly in the plural (see BIBLE, THE: ETC.): in *OE.*, an inscription; manuscript; book. SCRIP'TURAL, a. *-äl*, contained in the Scriptures, or authorized by them. SCRIP'TURALLY, ad. *-lī*. SCRIP'TURALIST, n. *-ist*, or SCRIP'TURIST, n. one versed in the sacred writings or Scriptures. ANTI-SCRIPTURAL, a. opposed to the teachings of Scripture.

SCRIVENER, n. *skriv'nér* [OF. *escrivain*; F. *écrivain*; It. *scrivano*, a notary—from mid. L. *scribanus*, a notary—from L. *scriba*, a scribe; *scribērē*, to write]: formerly, a professional writer; a money-lender; one whose business is to place money at interest.

SCRIVENER, *skriv'nér*, FREDERICK HENRY AMBROSE, LL.D., D.C.L.: born Bermondsey, Surrey, England, 1813, Sep. 29. He graduated from Trinity College, Cambridge, 1835; was appointed assistant at King's School, Sherborne, 1835; three years later was curate of Sandford Orcas, in Somerset; head-master at Falmouth School ten years from 1846; incumbent of Penwerris, Falmouth, 1846–61; in the latter year became rector of Gerrans, and held the position till 1875, when he became prebendary of Exeter, and was given the vicarage of Hendon. He has made a close study of biblical criticism, and was awarded 1872 a pension of £100 for his services in this direction. He was a member of the company which revised the authorized version of the New Test. Among his published works are the *Greek Testament*, of which 8 editions were issued; *Codex Bezae* (1864); *Cambridge Paragraph Bible of the Authorized English Version* (1873); and a *Greek Test. with Changes Made in the Common Text by the New Test. Company of Revisers* (1881).

SCRIVE'NER'S PAL'SY, or WRITER'S CRAMP: spasmodic affection of the muscles of the finger and thumb of the right hand, sometimes of the forearm. It may be caused by excessive use, or by holding the pen in a position which cramps the fingers. It comes on gradually; but if the work is continued, the trouble increases till it becomes impossible to hold the pen. Efforts to write with the other hand from the one ordinarily used often transfer the trouble to the muscles then called specially into use. The use of pen-holders in which there is no metal, or which are made in peculiar forms, has often been tried, but in most cases with little benefit. Rest, and strengthening the nervous system by tonics, are the best means of relief. The use of the galvanic battery has, in some cases, contributed to recovery. Artists, musicians, composers, tailors, and people engaged in other occupations requiring excessive use of certain muscles, are subject to this disease, though it often receives a name connected with the special line of work in which the patient is engaged. The muscles affected by S. P. can be used in other ordinary kinds of work without inducing an attack of the disease.

## SCROFULA.

SCROFULA, n. *skrōf ū-lă* [L. *scrofulæ*, scrofula—from *scrōfa*, a breeding sow, from the supposition that swine were subject to a similar complaint: F. *scrofules*]: constitutional tendency to certain diseases, including pulmonary phthisis: king's evil. SCROFULO'SIS, n. *-lō'sis*, scrofula without tubercle; as opposed to tuberculosis. SCROF'ULOUS, a. *-lūs*, diseased or affected with scrofula, or pertaining to it. SCROF'ULOUSLY, ad. *-lī*.—*Scrofula*, until a comparatively recent period, was regarded as consisting essentially of indolent glandular tumors, occurring frequently in the neck, suppurating slowly and imperfectly, and healing with difficulty: it now denotes a constitutional tendency to production and deposition of a substance called *tubercle* in various tissues and organs: tubercle must thus be regarded as the essential element of S. It does not follow, however, that a deposit of tubercle should actually occur in every case of S. The diseased *tendency* is present, and the absence or presence of the deposit depends on the extent of the affection, and is determined by various causes.

Sir James Paget, eminent pathologist, clearly sums up what is now understood by S.: 'It is a state of constitution distinguished in some measure by peculiarities of appearance even during health, but much more by peculiar liability to certain diseases, including pulmonary phthisis. The chief of these "scrofulous" diseases are various swellings of the lymphatic glands, arising from causes which would be inadequate to produce them in ordinary healthy persons. The swellings are due sometimes to mere enlargement, as from an increase of natural structure, sometimes to chronic inflammation, sometimes to an acute inflammation or abscess, sometimes to tuberculous disease of the glands. But besides these, it is usual to reckon as "scrofulous" affections certain chronic inflammations of the joints; slowly progressive "carious" ulcerations of bones; chronic and frequent ulcers on the Cornea, Ophthalmia (q.v.), attended with extreme intolerance of light, but with little, if any, of the ordinary consequences of inflammation; frequent chronic abscesses; pustules, or other cutaneous eruptions, frequently appearing upon slight affection of the health or local irritation: habitual swelling and catarrh of the mucous membrane of the nose; habitual swelling of the upper lip.' It is obvious that though the above-named forms of disease are often more or less coincident, they have nothing sufficiently in common to justify the general appellation of *scrofulous*. Certainly not all of them are tuberculous diseases; hence Sir James Paget doubts whether the proposal to make *scrofulous* and *tuberculous* commensurate terms is practical, since the former, as generally employed, has much wider significance than the latter.

While *scrofula* was the popular name, *struma* [supposed from *struo*, I heap up], used by Celsus, Pliny, and other Latin writers, was the classical name for the disease. The vulgar English name, *The King's Evil*, arose from the long-cherished belief that scrofulous tumors and abscesses

## SCROFULA.

could be cured by the royal touch. Multitudes of patients were submitted to this treatment, and, as the old historians assert, with perfect success, from the time of Edward the Confessor to the reign of Queen Anne. The writer of the article 'Scrofula' in *The English Cyclopædia* mentions the curious historical fact that the old Jacobites considered that this power did not descend to Mary, William, or Anne, as they did not possess a full hereditary title, or, in other words, did not reign by divine right. The kings of the House of Brunswick have, we believe, never put this power to the proof; and the office for the ceremony which appears in the English Liturgy as late as 1719 has been silently omitted. The exiled princes of the House of Stuart were supposed to have inherited this virtue. Carte, in the well-known note to Vol. I. of his *History of England*, mentions the case of one Christopher Lowel, who, 1716, went to Avignon, where the court was then held, and received a temporary cure; and when Prince Charles Edward was at Holyrood House 1745, Oct., he, though only claiming to be Prince of Wales and regent, touched a female child for the king's evil, who in 21 days is said to have been perfectly cured. The practice was introduced by Henry VII. of presenting the patient with a small coin (gold or silver). The accompanying is an engraving of the identical touch-piece presented to Dr. Johnson (Lent 1712—when he was only 30 months old), who was one of the persons touched by Queen Anne.—The French kings also touched for the 'Evil,' the practice being traced back to Clovis, 481. On Easter Sunday, 1686, Louis XIV. is said to have touched 1,600 persons, using the words: *Le roy te touche, Dieu te guerisse* (The king touches thee, may God cure thee). See Chambers's *Book of Days*, i. 82. The literature of this



Touch-piece (time of Queen Anne).

curious subject is extensive: see Tooker's *Charisma, sive Donum Sanctionis*, etc., 1597; Browne's *Charisma Basiliæ, or the Royal Gift of Healing Strumas*, etc., 1684; and Beckett's *Free and Impartial Inquiry into the Antiquity and Efficacy of Touching for the King's Evil*, 1722. The subject is also examined by Bp. Douglas in *Criterion, or Miracles Examined*, 1754; by Colquhoun in *Isis Revelata*, 1836 (who attributes the cure to animal magnetism); and by Howitt in *History of the Supernatural in All Ages and Nations*, 1863.

S. is a disease of early life, and when it does not exhibit any of its manifestations before the period of maturity it seldom shows itself afterward.

## SCROFULA.

In all systematic descriptions of this disease, two varieties of the scrofulous habit or diathesis are given: the *sanguine* or *serous*, and the *phlegmatic* or *melancholic*. In the *sanguine* there is a general lack of muscular development, the limbs being soft and flabby; the skin is fair and thin; the features are delicate, the rosy hue of the cheeks contrasting strongly with the surrounding paleness; the eyes are gray or blue, and the eyelashes long and silken; the hair fine and light-colored or reddish; and the ends of the fingers broad and expanded, with convex nails bent over them; the intellect is lively and precocious, and there is often considerable beauty. In the *phlegmatic* variety the skin is pale or ruddy, dark, and often harsh; the general appearance dull and heavy; the hair dark and coarse; and the mind usually slow and torpid.

Children in whom the serofulous constitution is strongly marked often present that narrow and projecting form of the chest called 'pigeon-breasted'; moreover, the abdomen is enlarged, the limbs wasted, and the circulation languid, in consequence of which they are especially liable to chil-blains. The digestive organs are so commonly affected—as is evidenced by irregular action of the bowels, fetid breath and evacuations, furred tongue, capricious appetite, etc.—that, in the opinion of an eminent writer, 'strumous dyspepsia presents a more characteristic feature of this habit of body than any physiognomical portrait that has been drawn of it.' In the great majority of cases the scrofulous disposition is hereditary; indeed, there is no disease so often transmitted from parent to offspring. There is, however, scarcely any doubt that it may be acquired under the action of various unfavorable exciting causes, which may be ranked together as 'causes of debility.' Among them may be especially noticed: (1) Insufficient and improper food; (2) Impure air; (3) Insufficient exposure to direct sunlight; (4) Exposure to wet and cold, and to sudden changes of temperature, especially if the clothing be insufficient; (5) Excessive and continued fatigue, whether bodily or mental; (6) Intense and prolonged anxiety or mental depression.

We present first, the general principles of treatment to be adopted; and then a brief notice of some most frequent forms of the disease.

The diet should be nutritious and sufficiently abundant, and animal food should be given at least twice daily. Dishes containing eggs and milk may usually be taken with advantage. If the patient is not very young, a little bitter ale at an early dinner will often promote digestion; if, however, it causes flushing or much sleepiness, it must be discontinued. A mother with S. should always provide a healthy wet-nurse for her child, as suckling in such a case is injurious to parent and offspring. Flannel should always (in summer and winter) be worn next the skin during the day, and the clothing must always be sufficient to keep the extremities warm. Constant residence in pure and dry air should be enforced as far as possible. Savory, in his essay on 'Scrofula' in Holmes's *System of Surgery*, I. (1860), re-

## SCROFULA.

marks that 'it is surely a mistake to suppose that a warm climate is the best adapted to all cases of S. It is doubtless so in the great majority in which the disease [in the form of pulmonary consumption] is far advanced; but in many cases at an earlier stage, its further development is more satisfactorily arrested and the general health improved by a more bracing air.' Residence is desirable where the atmospheric changes are not frequent and sudden, and the winter is comparatively mild. Free exercise of the muscles and lungs in the open air should be insisted on in fine weather; and if this cannot be taken, the best substitute is friction over the surface of the body with the flesh brush. Patients who can bear cold sea-bathing during the summer and autumn months will derive great advantage from it; but if a short immersion is not rapidly followed by a genial glow after drying the skin, such bathing is injurious, in which case warm salt-baths will be found useful. In the case of children the mind should be cheerfully occupied, but not overtired. The medicines most esteemed in the treatment of scrofula are iodine and its compounds, the salts of iron, bark, sarsaparilla, the alkalies and mineral acids, and cod-liver oil. The individual remedy must be decided by the physician; but it may be remarked that iodine and iron may often be advantageously prescribed together, in the form of the syrup of the iodide of iron, or other preparations; and that cod-liver oil, to be of benefit, must be taken for a long time, and regarded as diet rather than medicine. A tablespoonful may be considered a full dose for an adult; but this quantity should be gradually arrived at, the dose commencing with a teaspoonful. It is most easily taken when floating on a mixture of orange wine, or some other pleasant bitter fluid, with water. The lightest and clearest oil is probably the best, and in cold weather it should be slightly warmed, to render it more liquid and more easily swallowed. If what are commonly known as 'bilious symptoms' supervene, the use of the oil should be suspended for two days, and some gentle aperients should be prescribed.

Pulmonary consumption is a disease whose leading pathological feature is the deposit of scrofulous matter or tubercle in the lungs (see CONSUMPTION). One of the other forms of S. most frequent is that which affects the *lymphatic glands*, especially of the neck. The gland or glands may first become enlarged, either from an attack of acute inflammation, or from an indolent and painless deposit of tubercle. They may remain in this state either stationary or slowly enlarging for years, till from some accidental local irritation, or from some constitutional disturbance, they inflame and suppurate. After the discharge of the matter, the ulcerated skin usually heals with an ugly puckered cicatrix, generally a disfiguring mark through life. The local treatment consists in attempting to disperse the tumor, if it is hard and painless, by painting it with tincture of iodine, or by application of iodine ointment. If it is soft, and likely to suppurate, the process may be facilitated by the application of warm water dressing or emollient poultice.

## SCROLL.

ices. When there is undoubted fluctuation, indicating the presence of pus or matter, it is usually regarded as the best practice to open the abscess with a narrow-bladed bistoury; but some surgeons prefer allowing the matter to make its own way to the surface. The necessary internal treatment is that above described. The skin, especially behind the ears, about the mouth, nostrils, and eyelids, and on the scalp, is liable to pustular diseases of a serofulous origin. The free use of soap and water, followed by application of black wash or zinc ointment, and proper constitutional treatment, will generally effect a cure, except in the horrible form of scrofulous ulceration of the skin of the face known as *Lupus* (q.v.). Among other well known and very serious serofulous affections are *Acute Hydrocephalus* and *Mesenteric Disease* (see those titles). There is a peculiar and very intractable form of ulceration known as the *scrofulous ulcer*: see **ULCERS**. For the physical, chemical, and microscopical characters of the peculiar morbid deposit, to which reference has frequently been made in this article, see **TUBERCLE**.

**Scrofulous or Tuberculous Diseases among Animals.**—They are common among cattle, sheep, and pigs: in early life the tubercle is laid down in the mesenteric glands, and occasionally about the joints: in some regions scrofulous swellings occur also about the head and neck: in some grazing districts, the mucous membrane of the bowels is affected, constituting dysentery: but, as in man, the lungs are in animals also the most common site of tubercle, which here gives rise to pulmonary consumption. S. in all its forms is hereditary; hence animals with any such taint should be rejected as breeding stock. It is induced and fostered by 'breeding in and in.' It may be developed, and is always aggravated, by debilitating influences, such as bad food, or exposure to wet or cold. Prevention is insured by breeding only from healthy vigorous parents, and allowing the stock at all times adequate food and shelter.

**SCROLL**, n. *skröl* [OF. *escroue*, a scroll; mid. L. *escroa*, a scroll; Icel. *skra*, a short writing]: a roll of paper or parchment; a roll containing some writing: in *arch.* an ornament common in all styles; consisting of a band arranged in convolutions, like the end of a piece of paper rolled up. The Greeks used it in their Ionic and Corinthian Styles (q.v.); the Romans in their Composite; and in mediæval architecture, and all styles which closely copy nature, it is of constant occurrence: in *writing*, a circular flourish of the pen attached to a signature. **SCROLLED**, a. *skröld*, formed like a scroll.

## SCROPHULARIACEÆ—SCRUMPTIOUS.

SCROPHULARIACEÆ, *skrōf-ū-lā-rī-ā'sē-ē*, or SCROPHULARINEÆ, *skrōf-ū-lā-rīn'ē-ē*: natural order of exogenous plants, chiefly herbaceous and half-shrubby. The calyx is inferior, persistent, divided into five (sometimes four) unequal divisions. The corolla is monopetalous, more or less irregular, often two-lipped, exhibiting great variety of form; in the bud it has five (sometimes four) segments. The stamens are usually four, two long and two short, sometimes two, rarely five. The ovary is 2-celled, with many ovules; the style simple, the stigma generally 2-lobed. The lobes of the stigma sometimes display much irritability. The fruit is a capsule, or rarely a berry.—This order is very large, containing almost 2,000 known species, distributed over the whole world, both in cold and warm climates. Acridity and bitterness are prevalent characteristics, and many species are poisonous. Some are root parasites. Some are admired and cultivated for their flowers; some are used medicinally. *Digitalis* or Foxglove, *Calceolaria*, *Gerardia*, *Castilleia* or Painted Cup, *Pedicularis* or Lousewort, *Mimulus*, Mullein, *Antirrhinum* or Snapdragon, *Gratiola*, *Scrophularia* or Figwort, *Veronica* or Speedwell, and *Euphrasia* or Eyebright, are familiar examples. Very different from these humble herbaceous plants is *Paulownia imperialis*, Japanese tree, 30 to 40 ft. high, with trunk two or three ft. in diameter, and flowers in panicles, about as large as those of the Common Fox-glove.

SCROTUM, n. *skrō'tūm* [L. *scrotum*, the scrotum]: the sac or bag that contains the testicles. SCROTAL, a. *skrō'tāl*, pertaining to the scrotum. SCROTIFORM, a. -*tī-fawrm* [L. *forma*, shape]: in bot., formed like a double bag. SCRO'TOCELE, n. -*tō-sēl* [Gr. *kēlē*, a tumor]: hernia or rupture in the scrotum.

SCROUGE, v. *skrowj*, or SCROOGE, v. *skrōj* [etym. doubtful: comp. Dan. *skrugge*, to stoop]: colloq., to crowd; to squeeze; to press.

SCROYLE, n. *skroyl* [OF. *escrouelles*—from L. *scrofulæ*, a scrofulous swelling (see SCROFULA)]: in OE., a loafing idle fellow; a mean rascal.

SCRUB, n. *skrūb* [Sw. *skrubba*; Dan. *skrubbe*; Low Ger. *schrubben*, to rub, to scrub: Dut. *schrobben*, to rub or scrape; *schrabben*, to scratch: Gael. *sgrìob*, to rub, to scrape]: one that labors hard and lives meanly; a sorry fellow; anything small and mean; a well-worn brush or broom; dense underwood; stunted bushes; in *Scot.*, the jack-plane, or plane first used in smoothing wood: V. to rub hard with a coarse stiff brush. SCRUB'BING, imp. SCRUBBED, pp. *skrūbd*: ADJ. *skrūb'ēd*, in OE., dwarfed or stunted. SCRUBBY, a. *skrūb'bī*, small and mean; stunted in growth; vile. SCRUBBING-BRUSH, a brush for scrubbing, having short and coarse bristles.

SCRUFF, n. *skrūf*: see SCUFF.

SCRUMPTIOUS, a. *skrūmp'shūs* or *skrūm'shūs* [etym. doubtful]: slang, delightful, first-class; capital; nice; fastidious; particular.

## SCRUNCH—SCRUTIN DÉ LISTE.

**SCRUNCH**, v. *skrunch*: to crush with the teeth; to crunch; to grind down; to make a crunching noise.

**SCRUPLE**, n. *skró'pl* [F. *scrupule*—from L. *scrup'ūlus*, a small, sharp, or pointed stone, anxiety, scruple: It. *scrupolo*]: a trifling cause of uneasiness; doubt; hesitation to decide or act, arising from the difficulty of settling in the mind as to what is right or expedient; a small weight, equal to 20 grains (see below): any small quantity: V. to hesitate to act or decide; to doubt. **SCRU'PLING**, imp. **SCRU'PLED**, pp. *-pld*. **SCRU'PLER**, n. *-plér*, one who scruples. **SCRU'PULOUS**, a. *-pū-lūs*, nicely doubtful; exact; careful; conscientious. **SCRU'PULOUSLY**, ad. *-lī*. **SCRU'PULOSITY**, n. *-lös'i-tī*, minute and nice doubtfulness, arising from the fear of doing wrong; over-nicety. **SCRU'PULOUSNESS**, n. *-lūs-nēs*, the state or quality of being scrupulous; niceness or caution in determining or acting, from a regard to truth or propriety.—**SYN.** of ‘scrupulous’: nice; doubtful; capacious; careful; vigilant; cautious; conscientious; hesitating.

**SCRUPLE**, *skró'pl*: lowest denomination of weight among the anc. Romans, and with them denoted the 24th part of an ounce (*uncia*), or the 288th of a pound (*libra*). As a measure of surface it was also the 24th part of the *uncia*, and the 288th of an acre (*jugerum*); seeming, in fact, to be the 24th of the 12th part of any unit. In later Roman times it became the name of the 60th part of an hour, and corresponded to our ‘minute.’ The ‘minute’ being the *scrupulum*, the 60th part of a minute was called a *scrupulum secundum* (whence our word ‘second’), the 60th part of this a *scrupulum tertium*, and so on. Lexicographers define ‘scrupulum’ to be a small pebble, such as would be likely to find its way between the sandal and the foot, whence the use of the term to signify a small difficulty or objection.—The term at the present time is a denomination in that modification of Troy weight which is used by apothecaries; it contains 20 Troy grains, is the third part of a drachm, the 24th of an ounce, and the 288th of a Troy pound.

**SCRUTATOR**, n. *skró-tū'tér* [L. *scrutātor*, an examiner—from *scrūtōr*, I search carefully—lit., among rubbish—from *scrūta*, old trash]: a searcher; an examiner.

**SCRUTIN DE LISTE**, *skriü-täng' déh lëst*, and **SCRUTIN D'ARRONDISSEMENT**, *där-röng-dës-möng'* [Fr.]: methods of balloting in France for deputics to the national assembly. In the *scrutin de liste* each elector votes for as many candidates as there are deputics to be elected from his *département*. In the *scrutin d'arrondissement* each elector votes for the one deputy (or representative) apportioned to his *arrondissement*; *département* and *arrondissement* being terms in many respects analogous to our ‘state’ and our ‘congress district’ respectively.

## SCRUTINY—SCUDDER.

SCRUTINY, n. *skrō'ti-ni* [F. *scrutin*, a ballot—from L. *scrutin'ium*, a search—from *scrutāri*, to search carefully—from *scrūta*, old trash: It. *scrutinio*]: close search or inquiry; careful investigation; an examination of votes given at an election. SCRUTINEER, n. *-nēr*, one appointed to examine into the votes given at an election. SCRUTINIZE, v. *-nīz*, to examine or search into closely or critically. SCRUTINIZING, imp.: ADJ. closely searching. SCRUTINIZED, pp. *-nīzd*. SCRUTINIZER, n. *-nī-zér*, one who examines with critical care.

SCRUTOIRE, n. *skrō-tuōr'* [OF. *escritoire*]: a case of drawers, or a cabinet with a folding-down lid, convenient for writing on—usually ESCRITOIRE, which see.

SCRUZE, v. *skrōz*: in *OE.*, to press or thrust hard; to squeeze out of; to compress. SCRUZ'ING, imp. SCRUZED, pp. *skrōzd*.

SCUD, v. *skūd* [Dan. *skyde*, to shoot, to shove: Sw. *skutta*, to leap: Gael. *sgud*, to walk or move rapidly]: among seamen, to run directly before the wind in a gale, as a ship, with little or no sail set; to run with precipitation: N. the act of scudding; loose thin clouds driven along swiftly by the wind. SCUD'DING, imp. SCUD'DED, pp. SCUDDING UNDER BARE POLES, the state of a ship when driven before the wind without any sails set. A SCUD OF RAIN, a rapid shower driving with the wind. To SCUD ALONG, to move on swiftly. SCUDDLE, v. *skūd'l*, to run with an affectation of haste or precipitation.

SCUDDER, *skūd'ér*, HENRY MARTYN, D.D.: missionary: b. Panditeripo, Ceylon, 1822, Feb. 5; son of John S., missionary physician. He graduated at New York Univ. 1840, and Union Theol. Seminary 1843. Proceeding to India as missionary of the Amer. Board, he was in service at Madras, Vellore, and other places; and founded the Arcot Mission; also a dispensary there, having studied medicine. Returning to America for his health, he was pastor of a Presb. Church in San Francisco 1865-71, the Central Congl. Chh., Brooklyn, N. Y. 1872-82, and the Plymouth Congl., Chicago 1882-87, after which he went as missionary to Japan. He published books in the Sanskrit, Teluga, and Tamil languages—in the last a Liturgy of the Ref. Dutch Church (1862); *The Bazaar Book or the Vernacular Teacher's Companion* (1865); *Sweet Savor of Divine Truth* (1868); and *Spiritual Teaching* (1870). He d. 1895, June 4.

## SCUDDER.

SCUD'DER, HORACE ELISHA: author: b. Boston, 1836, Oct. 16; bro. of David Coit S., missionary to India. He graduated at Williams Coll., taught school in New York three years, since which he has lived in Boston; in 1890-93 was ed. of the *Atlantic Monthly*, having previously edited the *Riverside Magazine for Young People* 1867-70. Mr. S. wrote numerous books for children and youth, including *The Bodley Books*, 8 vols. (1875-87). Among his later works are *Men and Manners in America* (1876); *Stories and Romances* (1880); *Boston Town* (1881); *Noah Webster* (1882); *Hist. of the United States* (1884); *Men and Letters* (1887); *Life and Letters of Bayard Taylor* (1884); *Fables and Folk Stories*, new ed. (1887). He edited the Amer. Commonwealth series, and books of Amer. Poems and Prose (1879-80). He died 1902, Jan. 11.

SCUDDER, JOHN, M.D.; 1793, Sep. 3—1855, Jan. 13: b. Freehold, N. J.: missionary physician. He graduated at Princeton, and at the New York Coll. of Physicians and Surgeons 1813; and practiced awhile in New York; but in 1819 went to India as missionary of the Amer. Board, was the next year ordained minister in the Ref. Dutch communion (the Amer. Board, though prominently Congl., not being denominational), and labored in Ceylon. He opened a hospital and rendered much service during the prevalence of yellow fever and cholera—meanwhile establishing churches and schools. Excepting two visits to the United States, and one to the Cape of Good Hope, where he died, he labored at Madras after 1839. His nine children were missionaries in s. India. He published *Letters from the East* (1833); *Appeal to Youth in Behalf of the Heathen* (1846); *Letters to Pious Young Men* (1846); *Provision for Passing over Jordan* (1852), besides tracts and articles. A memoir of him was written by the Rev. John B. Waterbury.

SCUD'DER, SAMUEL HUBBARD, PH.D., LL.D.: b. Boston 1837, Apr. 3: entomologist: bro. of Horace Elisha S. He graduated at Williams Coll., and the Lawrence Scientific School, where he continued as asst. of Louis Agassiz, 1862-64; and was asst. librarian of Harvard, 1879-85. Since 1886 he has been one of the paleontologists of the U. S. geol. survey. He is one of the three foremost Amer. entomologists, and is recognized as the highest authority on fossil insects. His great work on the *Butterflies of the Eastern United States and Canada*, recently issued at \$75, is the noble result of long research, though the revival in it of obsolete names is not generally approved. A popular work is *Butterflies, Their Structure, Changes, etc.* (1882). Other publications are *Catalogue of Scientific Serials of all Countries 1633—1876* (1879); *Nomenclator Zoologicus* (1882); *Systematic Review of our Present Knowledge of Fossil Insects* (1886); *Winnipeg Country, etc.* (1886).

# PLATE 2.

Sculpture  
Ancient



1. Apollo Belvedere, 1st Cent. B.C.

2. Augustus.

3. Farnes Hercules. *Glycon.* 1st Cent. B.C.

4. Frieze from the Panthenon, 5th Cent. B.C.

5. Venus de Medici. *Cleomenes.* 200 B.C.

6. Farnese Bull. *Tauresus and Appollonius.* Cir. 300 B.C.

7. Laocoön-Group. *Agesander, Polydorus, and Athenodorus.* 2nd Cent. B.C.

## SCUDÉRY—SCUDO.

**SCUDÉRY**, *skü-dā-rē'*, MADELEINE DE: French novelist of a former day : 1607–1701, June 2; b. Havre. Left an orphan at the age of six, she, with her brother Georges de S. (1601–67), was carefully educated by one of her uncles. While still young, she left Normandy for Paris, was admitted to the Hôtel Rambouillet (see RAMBOUILLET), and soon became one of the oracles of the brilliant society that assembled there. It was in this famous but showy circle that Mademoiselle S. gathered that immense fund of watery sentimentalism, platonic gallantries, unending ‘polished’ conversation, dull ceremonial incidents, and commonplace moralizing, which are the contents of her romances. Their popularity was immense: everybody with pretensions to ‘taste,’ except the Port-royalists, Bossuet, and a few critics of the stricter sort, professed a boundless admiration for them. The bishops in general—e.g., Camus, Mascaron, Huet, Godeau, Fléchier, Massillon—were delighted with their stately and decorous prolixity. The personages of her novels, though under classical names, can usually be identified with some of her fashionable contemporaries. When the troubles of the Fronde had broken up the gatherings at the Hôtel Rambouillet, Mademoiselle S., under the name Sapho, organized a literary circle of her own, which met every Saturday at her house in the Rue de Beauce. She died at Paris, at the advanced age of 94, honored and respected to the last; for in personal character she was a pattern of the decorous morals and superfine demeanor that she loved to depict. Her style was not devoid of literary merit, and she evidently was a student of character.—Her principal works (never again to be read in this world) are: *Ibrahim, ou l'Illustre Bassa* (Par. 4 vols. 1641); *Artamène, ou le Grand Cyrus* (Par. 10 vols. 1649–53); *Clélie, Histoire Romaine* (Par. 10 vols. 1656); *Almahide, ou l'Esclave Reine* (Par. 8 vols. 1660); 10 vols. of *Conversations Nouvelles, Conversations Morales*, and *Entretiens de Morale* (1680–92).—See Victor Cousin’s *La Société Française au Dix-septième Siècle*.

**SCUDO**, n. *skō'dō*, SCUDI, n. plu. *skō'dē* [It. *scudo*, a shield, a crown or dollar—from L. *scūtum*, a shield]: an Italian silver coin corresponding to the Spanish *Piastre* (q.v.), the American Dollar (q.v.), and the English Crown (q.v.); named from its bearing the heraldic shield of the prince by whose authority it was struck. It differed in value in different states of Italy. In Rome the *scudo Romano* or *scudo nuovo* was equal to about \$1.03; and was subdivided into 10 *paoli* or 100 *bajocchi*. The Venetian S. or *scudo della croce*, was of higher value than the Roman; while the old scudi of Bologna, Genoa, and Modena were of less value. Scudi are now rare, being displaced by the new decimal coinage: but the name is sometimes given to the piece of 5 lire, equivalent to a 5 franc piece (= about 96½ c.) in the French coinage. Scudi of gold also were struck in Rome, the *scudo d'oro* being equivalent to 10 *scudi di argento*.

## SCUFF—SCUL-PIN.

**SCUFF**, n. *skūf*, or **SCRUFF**, n. *skrūf* [Dut. *schoft*, the nape of the neck: Fris. *skuft*, the withers of a horse, the tuft of hair which a person lays hold of to mount: Goth. *skuð*, hair of the head]: the loose skin on the shoulders by which a dog or cat is laid hold of; nape of the neck.

**SCUFFLE**, n. *skūf'fl* [prov. Eng. *scuff*. to shuffle in walking: Sw. *skuffa*, to nudge, to push: O.Dut. *schuffelen*, to drive by kicks and shoves]: a close struggle between two or more persons for the mastery; a confused or hasty contest; a fight: V. to strive or struggle blindly; to fight confusedly. **SCUF'FLING**, imp. *-flīng*. **SCUF'FLED**, pp. *-fld*. **SCUF'FLER**, n. *-flēr*, one who scuffles.

**SCUFFLE**, v. *skūf'fl* [Dut. *schoffel*, a Dutch hoe or scuffer; *schoffelen*, to scuffle weeds: Scot. *skuff*, to graze]: to rub lightly; to do any kind of work, as hoeing, sweeping, brushing, etc., in a slight but efficient manner: N. an instr. for lightly paring the surface of the ground to kill weeds. **SCUF'FLER**, n. *-flēr*, one who scuffles; a kind of horse-hoe.

**SCULK**: see SKULK.

**SCULL**, n. *skūl* [Norw. *skol*, a splash, a dash: Icel. *skola*, to wash: more probably connected with Icel. *skál*, a bowl, a hollow, the blade of the *scull* being *hollowed out*]: a cock-boat; in fresh-water usage, an oar so short and so light that a man can work a pair in rowing a skiff or light boat: among sea-faring men, a short oar placed over the stern of a boat, with the blade in the water, and worked somewhat like a screw by one person—the term is now frequently applied with this signification in fresh water also: V. to impel a boat by means of sculls; to propel a boat with a short oar over the stern. **SCULL'ING**, imp. **SCULLED**, pp. *skūld*. **SCULL'ER**, n. *-ēr'*, one who sculls; a boat rowed with sculls.

**SCULL**, n. *skūl* [Dut. *school*; Ir. *sgol*, a scull or shoal of fishes: a variant of SHOAL, which see]: a compact mass or body of fishes moving in one direction; a shoal.

**SCULLERY**, n. *skūl'ēr-ē* [Icel. *skola*; Sw. *skölja*; Dan. *skylle*, to rinse, to wash: AS. *swilian*, to wash: OE. *squylerey*; Norm. F. *squillerge*, a scullery]: in a house, a small room set apart for keeping kitchen utensils and for cleaning them; a place to wash and scour in. **SCULLERY-MAID**, a female servant who attends to the cleaning of the kitchen utensils, etc.

**SCULLION**, n. *skūl'yūn* [OF. *escouillon*; Sp. *escobillon*, a dish-clout: Sp. *escoba*, a brush, broom—from L. *scōpē*, a besom]: a servant whose duty it is to keep the kitchen utensils clean; a low mean drudge. *Note*.—*Scullion* and *scullery* are totally distinct in origin.

**SCUL-PIN**: see BULLHEAD.

## SCULPTURE.

SCULPTURE, n. *skulp'tür* or *-chür* [F. *sculpture*—from L. *sculptūra*, a cutting out or carving—*from sculpérē*, to carve in stone]: art of cutting or carving stone to form representations of visible or ideal objects, e.g., the figure of a man; any work of art produced by the chisel, or from hard or solid material: V. to cut or carve with the chisel, as stone. SCULP'TURING, imp. SCULP'TURED, pp. *-tūrd*: ADJ. produced in stone by the chisel. SCULP'TURAL, a. *-äl*, pert. to sculpture. SCULPTOR, n. *-ter*, one whose occupation or profession is sculpture. SCULP'TRESS, n. *-trës*, a female who practices the art of sculpture. SCULP'TURESQUE', a. *-ësk'*, possessing the character of sculpture; denoting high relief.—*Sculpture*, as artistic carving, is the art of expressing ideas or images in solid materials. In this sense processes which do not, strictly speaking, involve the cutting of hard substances are included: thus S., as an art, includes the molding of soft materials also. Clay, and even wax, have been in all ages of the art employed, sometimes for the purpose of mere sketches or models for reproduction in marble or metal, sometimes as the material of the finished work. The art of S. is as old as any that has been handed down to us. The Scriptures allude to the working of brass and other metals in the beginning of human society, and we read of Laban's images carried off by his daughter. The great nations of antiquity all practiced it, though only Nineveh and Egypt have left anything like a fair representation of the state of the art in those early times. From the nature of this art its productions have proved more durable than those of painting, and have come down to us in more numerous instances even than works of architecture. While the latter have been destroyed, works of S. have remained buried, and from time to time have been reproduced for the instruction and enjoyment of modern nations.

As an art, or means of recording facts and representing ideas, S. has many disadvantages as compared with painting, neither color nor picturesque backgrounds being properly admissible in sculpture; though to this rule there are exceptions in the works of Ghiberti (q.v.) in the 15th c.

Sculptures are distinguished by different terms, according to the nature and completeness of the work. Groups or figures completely represented are said to be 'in the round.' Those only partially detached from the mass or background are said to be 'in relief': this is called 'high' or 'low relief,' according as the figure stands fully or slightly above the mass behind it. The ancient Egyptians employed another kind of relief, their figures being sunk below the surface, and only the prominent portions remaining level with it. In this case the background or unoccupied space is not cut away, but the figures are worked downward into it. Another process is called 'intaglio,' the whole figure being regularly designed and molded, but 'cut into' the material and inverted: this is usually applied to the making of gems and seals. See RELIEF: INTAGLIO: ALTO-RILIEVO). Another sculptural process is used in the treatment of metals. As metals are both harder than stone

## SCULPTURE.

and more valuable, it is not possible to cut or grave works out of masses of metal as in stone or gems. The metal is fused by heat, and the form is given it while in that state. This is done by first forming or molding the design in clay or other soft material. Round the model thus formed, a mold is formed of sand, which is prepared and pressed round it in a wet state till it takes the complete form of the model, which is then removed, and the liquefied metal poured in. It takes the exact shape of the model by this means. These are said to be 'cast,' because of the casting of the liquid metal into the mold. Other processes, however, have, in the finer works, to be applied. The metal retains the rough surface of the sand in which it has chilled. It is therefore worked over with a graving-tool, to give it a final surface, and express every delicacy of form intended by the artist. In some cases this 'engraving' is in the form of ornamental design, such as dress, etc. Sometimes the whole design is engraved without any previous casting. In this case the metal has had its form given by 'hammering' or 'beating.' The metal, hot in the case of iron or bronze, or cold in the case of silver and gold—softer metals—is beaten on the anvil into its form. A coarser and deeper method of engraving is called 'chasing,' where deeper sinkings and bolder prominence are given to various parts of the design.

As to materials in use for these various purposes: in sculpturing, or cutting designs or figures, we generally find that marbles have been employed; the most famous having been the 'Parian,' from the Isle of Paros, and the Pentelic, from the mountain of that name in Attica. Besides these, the ancients used numerous marbles—white, and latterly colored: the late classical sculptors sometimes employing both white and black: or colored, in lumps on the same work, the colored marble being used for the dress or hair as it might be. The Egyptians, besides the use of these materials, and various kinds of fine and coarse-grained stone, employed porphyry, purple and black, an exceedingly hard and difficult material to handle. The modern sculptors have used the white marble of Carrara in Italy, excellent material, but liable to veins and discolorations unfavorable to the art. 'Terra Cotta,' or burnt clay, was extensively in use both in ancient and in modern times; the clay being molded to the utmost delicacy while soft and then baked to a red color. Singularly fine reliefs remain from the Etruscans and Greeks, as well as from Egypt and elsewhere, as may be seen in the Brit. Museum and other great collections. It has also been used extensively in modern times. The Egyptians modelled little figures in porcelain clay, and colored and enamelled them after the fashion of porcelain, and great numbers of such are in most of the museums. The word 'toreutic,' from the Greek *toreuō*, to pierce or bore, is usually applied to S. in metal. For this the metal most appropriate, and most generally used in ancient and modern times, is 'bronze,' a mixture of copper and tin known also as 'brass.' Other metals, in small quantities, were introduced, and various

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kinds of bronze have resulted from this variety, as well as from the proportions of the two principal metals, the method of fusion, etc. Ægina, Delos, and Corinth made different kinds of bronze, each of excellent quality. Besides this favorite metal, gold, silver, copper, and even lead, and mixtures of lead and tin—‘ pewter’—have been used for artistic S. In the celebrated period of Greek S., gold and ivory were used together. These statues, two of which were made by Phidias, were called ‘ chryselephantine’—i.e., of gold and ivory.

The ordinary modes of proceeding in S. have been very various; whether the more celebrated sculptors of ancient times cut out their designs at once without the previous rehearsal of a model, we do not know: it is, however, very probable. The Egyptian bas-reliefs are still seen in some of their tombs, lined out, and corrected afterward by a master’s hand previous to execution. Michael Angelo, most powerful of modern sculptors, is known to have worked many of his statues without the use of any model, out of the blocks. Florence, and the Louvre (Paris), contain marble sketches or unfinished figures thus roughed out. The length and size of the chisel-marks show how boldly this great master went to work to within  $\frac{1}{2}$  of an inch of his final surface. As, however, there can be no putting on of any of the substance of stone once reduced by inadvertence, the artist commonly makes his sketch or design, in small, in clay. This is subsequently enlarged, and then studied from ‘the life;’ that is, men, horses, draperies, etc., the most suitable to the artist’s present purpose, are selected, and with these before him, he corrects his design and perfects it while the material is soft. A mold is then taken, as above described, and with a plaster instead of a metal cast before him, the artist begins work on his marble. The cast being placed on one block, and the marble on one precisely similar, workmen proceed to place a needle on a measuring-rod, the rod resting against the block till it touches a point of the cast. The needle is then applied to the block on which the marble stands, and this is bored into till the needle touches it as it did the cast. In this way the distance of the various surfaces of the future figure from the outside of the unshaped marble are ascertained, and the workmen rough out the figure down to those measurements. The sculptor then gives the delicate touches that finish it. Finally, it is smoothed with pumice-stone or sand. Michael Angelo and some of the ancients actually polished their statues; this, however, is generally objected to, as the sharp points of reflected light injure the general effect of the form.

We notice one other question relative to S. before proceeding to a short review of the art historically—the question of color. The ancients—i.e., Egyptians, Ninevites, and others—did color their statues, intending, probably, to do so up to ‘life’—i.e., to a direct imitation. The Greeks, too, employed color on their statues, certainly on their architecture. To what extent they colored their statues, it is not easy to determine. Partly, indeed, time

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has so altered, and partly so obliterated the coloring material, that we can form only an approximate judgment. It seems probable that the coloring was conventional—that is, that color was used to add to the splendor and distant effect of the work, rather than to attempt positive imitation of real life. A head in the Elgin Room of the Brit. Museum has been colored, the hair full red. The eyes are completely cut out, so as to show dark and shadowy hollows, even with the face colored. Gilding, too, was used for the hair. Color was extensively used in the middle ages. Many, if not most, interior sculptures were colored during that period. In our own days Gibson has colored female statues: it is open to doubt whether they can be called successful as far as the color goes. Other means, however, were used to give color in late classic times, as is seen in the Vatican, where a bust retains both enamelled eyes and black eyelashes inserted into the marble. To the mixture of marbles to obtain the effect of color we have already alluded.

For notices of the best sculptural work known, that of Phidias, see ELGIN MARBLES. The majority of portable works are statues: of these, some calculations reckon as many as 60,000 of one kind and another. Fragments of these have various terms applied to them. ‘Busts’ are heads, or heads and chests; a ‘torso’ is a figure without head or limbs. These are perhaps fragments. Horace, however, is supposed to allude to a recognized form of such pieces of S. in the words ‘medium minervam.’ Statues are called ‘terminal’ when they consist of a head only made out, the body being represented by a square post. These were set up as boundary-marks, to invoke favorite deities for the owner’s prosperity; hence the name ‘terminal.’

We proceed to a summary survey of the history of S. We have said that ancient nations, both of profane and sacred history, were sculptors. Of these, the Egyptian and the Ninevite are best known. The Egyptian S. goes back as far as 1700, or even, in the case of the pyramids, 2000 years b.c. (Gardner Wilkinson, *Anc. Egyptians*). Both sculptured the human form, the Egyptians with most knowledge and refinement; both were restricted by religious traditions from arriving at a full representation of the human form; both used mixed forms of man-headed bulls, or man-headed and ram-headed lions. Usually these were colossal. The Egyptians, besides this, covered the walls of their sepulchres and temples with spirited and amply detailed historical representations.

The next great nation of whose productions we can judge was the Etruscan: they were of Greek origin. There is a great oriental influence or character in their work. It is also to some extent conventional, but often full of sublimity, and the figure quite correct in outline. This is illustrated also by their pottery, covered with figure designs, of which abundance has been excavated in various parts of Italy. All these schools, including the Etruscan, are stiff and dry in execution—that is, lacking in the ease,

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fulness, and movement of the human form. They are called 'archaic,' meaning by that term unformed and undeveloped, belonging to an age uninstructed in technical knowledge.

Beginning with the early Egyptian times, this first period, called Archaic, may be concluded with those of the Etruscans, and brings us down to about B.C. 600. From this time a rapid growth in the art took place; schools were formed in the great cities of Greece, Sicyon, Ægina, and Corinth; and we read of Callon, Onatas, Glaucias, and other names, culminating in Ageladas of Argos. These men sculptured on a colossal scale, and we have already alluded to the bronze for which the Greek cities had long been famous. These schools produced the famous Æginetan Sculptures (q.v.) found 1812, as well as those of Selinus, in Sicily. Casts of the former may be seen in the British Museum: the originals are at Munich.

The great period of S. began about B.C. 484, when Phidias was born. Ageladas was his master, as also of Polycletus and Myron, of whose works copies are in the Vatican and elsewhere, made by Greek artists in the times of the Roman empire.

The great work of Phidias (q.v.) is described elsewhere. Pericles did much to encourage the arts both of sculpture and painting. For a century and a half, or for two, S. slowly declined. This great school ended in Praxiteles (q.v.), a sculptor of consummate powers. He carried the representation of the human form further than Phidias and his scholars, and draperies in his hands lost their severe character, and clung to the rounded limbs, which they no longer concealed. His work is seen in the casts of the Nike Apteros, or sculptures of the temple of unwinged Victory, in the Brit. and other museums. He is said to have been the first to represent the female form quite nude, and to have contributed by such sculptures to the enervation and gradual sensualizing of the art. During the 5th and 4th c. B.C., were Agoracritos of Paros; Alcamenes of Athens; Scopas, author of the famous Niobe group now at Florence; Lysippus of Sicyon, favorite of Alexander; Chares, author of the famous Colossus of Rhodes; Agasias, who sculptured the *Fighting Gladiator*; Glycon of the Farnese Hercules; and many others.

The Roman conquest of Corinth under Mummius in the 2d c., and afterward of Athens, brought this old art to an end. Thenceforth Greek artists were found all over the Roman empire, and the famous works of these former sculptors were reproduced by them for their new masters. The Roman S., indeed, is included in this phase of Greek art—the last remarkable work that we here notice of classic times being the famous column of Trajan, in the early part of the 2d c. after Christ: this is, in fact, a tower more than 100 ft. high, of white marble, entirely covered with bas-reliefs representing the Dacian wars of Trajan. We here see the expiring effort of classic art. Skilful and correct as is the design, it is, as a whole, graceless, stiff, and without beauty, compared with the old work. Con-

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stantine in the 4th c. carried off to Byzantium, his new seat of government, all the S. that he could remove.

The art revived in Italy. As early as the 10th c., S. exhibited both design and grandeur, though wholly different from that of older times. Absolute freedom from old conventionalities, vigor, dignity, and childlike freshness of mind, distinguish modern S. down to the 15th c. Among the most noted names are Niceolo of Pisa, 13th c., who executed the bas-reliefs at Orvieto; after him, his son Giovanni. Andrea Pisano made one of the bronze gates of the baptistery of Florence. Ghiberti, author of the more famous doors of the same baptistery, is next to be named; then Donato di Be' to Bardi, or Donatello: some of his works are in the Church of Or san Michele, which the famous Oreagna, sculptor, painter, and architect, had built and decorated.

We begin the next period with Verrocchio, 15th c., and the more famous Michael Angelo in the 16th. A host of great names followed: Cellini, Torrigiano (who made the monument of Henry VII. at Westminster), Della Porta, Giovanni di Bologna, and Luca della Robbia, who also worked in enamelled terra-cotta on a large scale: these are Italian names. We add Jean Goujon and Germain Pilon in France. In Britain, splendid mediæval works are seen in the noble sculptures of Wells Cathedral, and of that of Lincoln, equal with those of the Pisani. Cibber, who sculptured in England, was a Dane. Thorwaldsen, native of Iceland; Canova, Italian; and, lastly, Flaxman, bring us down to our own days. Of Flaxman, the finest work is perhaps the Wellington Shield, after the Homeric description of that of Achilles.—For details of most of the eminent sculptors mentioned in this article, see their respective titles.—See the works of Winckelmann and Kugler, Westmacott's *Handbook of Sculpture*, and Murray's *History of Greek Sculpture*.

Horatio Greenough (1805–52), though not the first to execute busts, may be regarded as the pioneer American sculptor. Of the formal classic school, now obsolete, he was stronger than Thomas Crawford (1813–57) and Thomas Ball (1819– ), the latter conspicuous in his colossal bust of Webster, Central Park, New York. One of the best of that school, Rinehart (1825–74), is known by his *Clytie, Latona and Her Children*, and his completion of Randolph Rogers's (1825– ) bas-reliefs on the Capitol doors at Washington. Richard S. Greenough (q.v., 1819– ) has honored works in Boston. Hiram Powers (1805–73) made fine busts, both portrait and ideal, and his not very original nude figures were noted as novelties from an American hand. Joel T. Hart (1810–77) was at his best in portrait busts; also Shobal V. Clevenger (1812–43). Henry K. Brown (1814–86) was broad and free in style, as shown by his Washington in Union Square, New York. Erastus D. Palmer (1817– ) is known by many works of ideal beauty. Of Edward S. Bartholomew (1822–58) there are many classical subjects as examples, in the Wadsworth Gallery, Hartford, Conn. Benjamin Akers (1825–61) illustrated romance in *Una and*

# PLATE 3.

Sculpture  
Médiéval



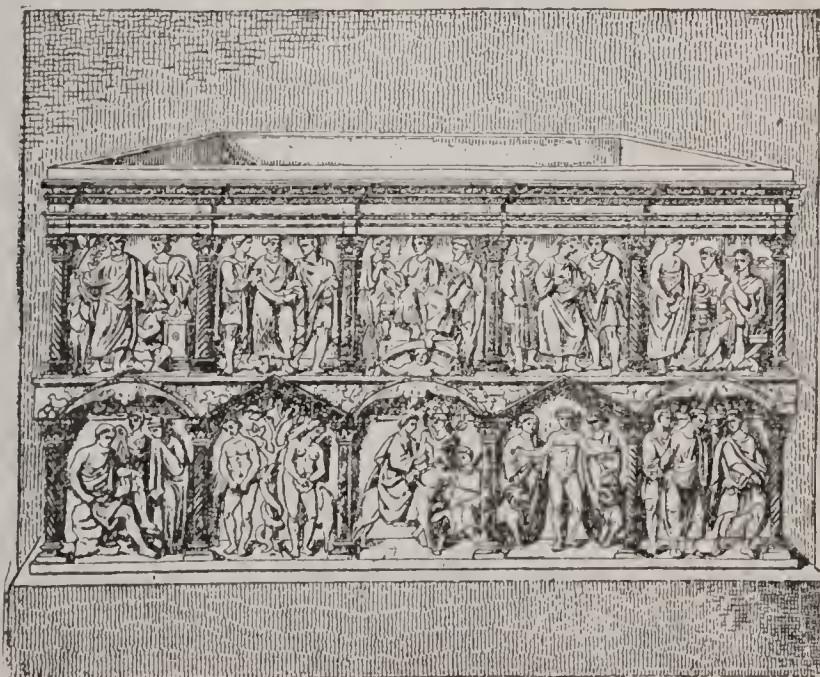
2. Death of The Virgin Mary—Early Gothic. 13th Cent.



1. Moses Well at Dijon. Cir. 1400.



3. Golden Portal at Freiberg—Early Gothic. 13th Cent.



4. Sarcophagus of Junius Bassus. Early Christian Rome.

## SCULPTURED STONES.

*the Lion*, Schiller's *Diver*, etc.; and Harriet Hosmer (1830- ) illustrated romantic mythology. John Rogers (1829- ) is universally known by his clever statuette groups. John Q. A. Ward (1830- ) has won just fame by such works in New York as the Washington in Wall st.; the William E. Dodge, 34th st.; and Greeley, at the *Tribune* building; also the Beecher fronting the City Hall, Brooklyn, N. Y. Of other sculptors now before the public, Launt Thompson is disabled; his portrait busts are very fine, and his statues of Scott and Burnside notable. Charles Calverly (1833- ) is doing various good work—lately a statue of Robert Burns, with illustrative pedestal panels, for Washington Park, Albany, N. Y. Larkin G. Mead (1835- ) has adorned the Vermont State House and other capitols, and illustrated the life of Columbus, among other subjects. Augustus St. Gaudens (about 1847- ) has distinguished himself by the Admiral Farragut, Madison Square, New York; the Lincoln in Chicago, etc. His brother Louis (1854- ) has worked with him and independently. Jonathan S. Hartley (1845- ) is author of the Revolutionary monument, with elaborate panels, at Saratoga, and has in his studio a boldly personified *Whirlwind*, admirable busts, and *The Pilgrim*, erected in Springfield, Mass. Ernst Plassmann (1823-77) lives in the statue of Franklin, in front of the *Times* building, New York, and in figures adorning some New York buildings. Daniel C. French (1850- ) ranks high; witness his Gallaudet group in Washington, his John Harvard, etc. Frederick W. MacMonnies executed the recent worthy statue of J. S. T. Stranahan, Prospect Park, Brooklyn, N. Y. Edward V. Valentine (q.v.) of Richmond, Va., has done notable historic and ideal work.

SCULPTURED STONES: class of monuments decorated with rude sculpture, in Norway, Denmark, the Isle of Man, Wales, Ireland, and Scotland; belonging to the early periods of Christianity—sometimes, indeed, showing the symbols of paganism in conjunction with those of Christianity. By far the most remarkable S. S. are found in Scotland, which, with some points common to them with the rest, possess the distinguishing feature of a class of characters or symbols of mysterious origin, whose meaning yet remains an enigma to antiquaries, and which yet recur with such constancy in different combinations, that it is impossible to suppose their form the work of chance. With these symbols the figure of the cross is often found on one side. Neither in Ireland, in Wales, nor anywhere else, are the symbols in question found. These monuments all occur within a circumscribed part of Scotland. None are found either within the ancient Dalriada, or s. of the Forth; their limit seems to be the e. lowlands from Dunrobin to Largo Law, or the part of Scotland inhabited by the Pictish race. From 150 to 200 of them are known. Various theories regarding these stones have been advanced: but those antiquaries who have given most attention to the subject deem them sepulchral. Most of them are unhewn, and more or less oblong in shape; a very few have the form of a cross. One of the most fre-

## SCULPTURED STONES.

quent symbols has been likened to the letter Z. Another prevalent symbol is a crescent. A mirror and comb, a horseshoe-arch, a fish, and a figure like a fibula, are occasionally met with. On Norrie's Law, on the Dunnichen Stone, is a figure which appears to be the head of a dog or some other animal.



Fig. 1.—Dunnichen Stone.

On the later Scottish sculptured stones an elephant is not unfrequent, and fabulous and grotesque figures abound; also centaurs, lions, leopards, deer, beasts of chase, men shooting with a bow and arrow, men devoured by animals, processions with men and oxen, and priests



Fig. 2.—Part of Sculptured Stone—Island of Ellanmore, Argyleshire.

in their robes with books. Many of these figures are interesting illustrations of the manners, customs, and dress of the period.

## SCUM—SCUPPERNONG.

The general style of ornamentation of these stones, judging by a comparison with Anglo-Saxon illuminated MSS., has led to the conclusion that they were erected in the 8th or 9th c., when Christianity had but lately supplanted paganism among the Scottish Picts.

In Ireland, Wales, Scandinavia, and other n. European countries, S. S. are found. Those in Scandinavia and the Isle of Man somewhat resemble the Scotch monuments in general style, though destitute of the peculiar Scottish symbols. On some are Runic inscriptions: see RUNE.

**SCUM**, n. *skūm* [Icel. *skúm*; Dan. *skum*; Ger. *schaum*; OF. *escume*; It. *schiuma*; Gael. *sgum*, foam, froth]: impurities which rise to the surface of liquids, particularly when boiled or fermented; the refuse; the recrement; the portion which is worthless or vile: V. to clear off scum. **SCUMMING**, imp. **SCUMMED**, pp. *skūmd*. **SCUM'MER**, n. *-mér*, an instr. for taking off the scum of liquids. **SCUM'MINGS**, n. plu. *-mīngz*, the matter skimmed from boiling liquids. **SCUM'MY**, a. *-mī*, covered with scum.

**SCUMBER**, n. *skūm'bēr*: see SCUMMER.

**SCUMBLE**, v. *skūm'bl* [from SCUM, which see]: to spread or rub colors very thinly over other colors in order to modify the effect. **SCUMBLING**, imp. *-blīng*: N. the act of spreading colors of a semi-transparent character over other colors to modify the effect. **SCUMBLED**, pp. *-bld*.

**SCUMMER**, v. *skūm'mér*, or **SCUM'BER**, v. *-bēr* [OF. *escumbrier*, *encumbrier*, to embarrass, to dirty]: in *OE.*, to dung; to dirty; to smear. **SCUM'MERING**, imp. **SCUM'MERED**, pp. *-mērd*. **SCUM'BER**, n. dung, especially of a fox.

**SCUNCHEON**, n. *skūn'shon* [etym. doubtful]: in *arch.*, the stones or arches thrown across the angles of a square tower to support the alternate sides of the octagonal spire; also the cross-pieces of timber across the angles to give strength and firmness to a frame.

**SCUNNER**, n. *skūn'nēr* [AS. *scunian*, to shun: comp. Gael. *sgeun*, a sudden fright]: in *Scot.* and *prov. Eng.*, loathing; disgust: V. to cause loathing; to disgust. **SCUN'NERING**, imp. **SCUNNERED**, pp. *skūn'nērd*.

**SCUP**, or **SCUP'PANG**: see PORGY.

**SCUPPER**, n. *skūp'pēr* [OF. *escopir*; Bret. *skopa*, to spit: Sp. *escupir*, to spit, to dart]: holes in a ship's deck or side to carry off rain-water or the water shipped—usually in the plu., **SCUPPER-HOLES**, or **SCUPPERS**. **SCUPPER-NAIL**, a nail with a very broad head, used on shipboard to secure the edge of the hose to the scupper.

**SCUPPERNONG**, n. *skūp'ēr-nōng* [etym. doubt.]: a kind of grape found wild, and cultivated in the s. states. It is said to be a variety of *Vitis vulpina*, and to have been brought from Greece.

## SCURF—SCURVY.

**SCURF**, n. *skérf* [Ger. *schorf*; Dan. *skurv*; Dut. *schurft*; Sw. *skorf*, scurf, scab]: the white flaky matter formed on, and thrown off by, the skin, particularly that formed on skin covered with hair, as the head; any matter loosely adherent. **SCURFY**, a. -*i*, covered with scurf, or resembling it. **SCURFINESS**, n. -*i-něs*, the state of being scurfy.

**SCURRILE**, a. *skür'ril* [L. *scurrīlis*, jeering, scurrilous—from *scurrā*, a buffoon, a jester: It. *scurrile*]: befitting a buffoon or jester; grossly opprobrious; low; mean; scurrilous. **SCURRILITY**, n. *skür-rl'i-ti*, vile or obscene jocularity; mean buffoonery; gross or obscene language. **SCURRILOUS**, a. *skür'rīl-ūs*, grossly opprobrious in language; using gross vulgarities only befitting a buffoon; lewdly jocular. **SCURRILOUSLY**, ad. -*lī*. **SCURRILOUSNESS**, n. -*něs*, the quality of being scurrilous; indecent grossness of language.—SYN. of ‘scurrilousness’: insolence; vulgarity; indecency; abuse;—of ‘scurrilous’: abusive; reproachful; vulgar; foul; low; indecent; infamous; mean; opprobrious; insulting; insolent; offensive; vile; gross; foul-mouthed.

**SCURVY**, a. *skér'vī* [corruption of **SURFY**]: scabby; covered with scabs; thin, shabby, or mean; sorry; in *OE.*, vile; worthless; offensive. **SCURVILY**, ad. -*vī-lī*, in a scurvy manner; basely; meanly. **SCURVINESS**, n. -*něs*, vileness; meanness.

**SCURVY**, n. *skér'vī* [mid. L. *scorbūtus*; F. *scorbut*; OF. *scurbut*, scurvy: prov. Eng. *scorvy*; Ger. *scharbock*, scurvy]: disease characterized by livid spots of various sizes on the skin, and by a general debility; caused by confinement, lack of fresh food and vegetables, and of exercise; affecting chiefly sailors on long voyages—formerly very fatal, but now generally prevented or cured by free use of lime-juice. **SCURVINESS**, n. -*vī-něs*, the state of being affected by scurvy.—*Scurvy* or *Scorbutus* is characterized by a depraved condition of the blood. In consequence of this morbid state of the blood, there is great debility of the system at large, with tendency to congestion, hemorrhage, etc., in various parts of the body, especially in the gums. S. has probably existed from the earliest times, but the first distinct account of it is contained in the history of the crusade of Louis IX., in the 13th c., against the Saracens of Egypt, during which the French army suffered greatly from it. In the 16th c. it prevailed endemically in various parts of n. Europe, and it seems to have abated only about a century ago. It was in badly-fed armies, in besieged cities, and on board ship, that its ravages were most appalling, and it is believed that more seamen perished from S. alone than from all other causes combined, whether sickness, tempest, or battle. Whole crews were prostrated by this scourge, as in the case of Lord Anson’s memorable voyage.

S. closely resembles *Purpura* (q.v.) in general symptoms; but there are leading points of difference; indeed essentially the two are different. S. is caused by privation, for a considerable time, of fresh succulent vegetables, while purpura often appears when there has been no deficiency.

## SCURVY-GRASS—SCUTAGE.

of this food. S. is most common in winter or the early spring, but summer and autumn are the seasons for purpura. In S. the gums are invariably swelled and spongy, and bleed readily; in purpura this is not necessarily the case. In S. there are extreme debility and depression of spirits; venesection and mercury do positive harm; while a cure is rapidly effected by use of lemon-juice, or fresh fruits and vegetables; whereas in purpura there is little depression, venesection and mercury often give relief, while no marked relief is given by lemon-juice and fruits.

Lemon-juice or lime-juice—though its virtues had long been known—was not made an essential element of British nautical diet till 1795. In 1780 the number of cases of S. received into Haslar Hospital (purely naval hospital) was 1,457; 1806 there was only one case, and 1807 only one case. Many naval surgeons of the present day have never seen a case of S. The potato, cooked or raw, has almost equal antiscorbutic properties with lime-juice. If necessary, constipation must be relieved by mild laxatives, and the appetite may be stimulated by bitter tonics. Of late, it is held that a varied food scale, with all careful sanitary regulations, is more effective than lime-juice.

SCURVY-GRASS, n. *sker'vi-gräs* [said to be named from its use as a cure for scurvy: comp. Dan. *skeeurt*—*lit.*, spoonwort—from *skee*, a spoon; *urt*, a root], (*Cochlearia*): genus of plants of nat. order *Cruciferae*, having small white flowers and many-seeded pouches. They are annual or biennial, rarely perennial, plants; of humble growth, with branched smooth stems, smooth simple leaves, and terminal racemes of flowers. They have an acrid biting taste, containing the same pungent volatile oil which is found in horse-radish, and are valued for antiscorbutic properties. COMMON S. (*C. officinalis*) is sometimes 12 inches high; the root-leaves are stalked and heart-shaped; the pouches globose, ovate, or elliptical. It is a variable plant, and some of the other species described by botanists are probably not essentially different: they have the same properties. S. is a very widely-distributed plant, found on the shores of almost all parts of the world, also on high mountains.

'SCUSE: for EXCUSE in Shakespeare.

SCUT, n. *sküt* [Icel. *skott*, a rabbit's tail: W. *cwt*, a tail; *ewta*, bob-tailed: Gael. *cut*, a piece, a bob-tail]: the tail of a hare, or other animal having a short tail.

SCUTA, n. plu. *skü'tä* [L. *scütum*, a shield]: any shield-like plates, especially those developed in the integument of many reptiles.

SCUTAGE, n. *skü'täj* [mid. L. *scutagium*, scutage—from L. *scütum*, a shield]: in *anc. feudal law*, a tax sometimes levied by the crown as a substitute for knight-service, or for personal service due from a vassal or a tenant to his superior: see ESCUAGE: KNIGHTHOOD.

## SCUTARI.

SCUTARI, *skō'tā-rē* (Italian or Levantine form of Turkish *Usküdar*): town of Asiatic Turkey, on the e. shore of the Bosphorus, immediately opposite Constantinople, of which it may be considered a suburb. It is on the sides and summit of a hill, sloping irregularly up from the water's edge; and both externally and internally has great resemblance to the Turkish capital. It contains several mosques, bazaars, and baths, a college of howling dervishes, manufactories of silks and cotton fabrics, corn warehouses, and *imarets* or kitchens for the poor. It has long been famed for its extensive cemeteries, adorned with magnificent cypresses, the chosen burial-place of many of the Turks of Constantinople, from their attachment to the sacred soil of Asia, and the traditional belief that their race will in some coming day be driven out of Europe: probably more than 3,000,000 of them are buried here. This town acquired notoriety in connection with the English army during the Russian war (1854-56), when the enormous barracks built by Selim III., on the s. outskirts of the town, were occupied as barracks and hospital by the English troops, and formed the scene of Miss Nightingale's labors. They form a vast quadrangle, with corridors whose total length is estimated at 4 m. A little s. of the General Hospital, on the cliffs bordering the Sea of Marmora, is the densely-filled English burial-ground, where Baron Marochetti's monument in honor of the 8,000 troops that lie there has been erected.—S. is a place of considerable traffic, and is the rendezvous and starting-point of caravans and travellers trading with Syria and interior Asia. It occupies the site of the ancient *Chrysopolis*; and about two m. s. lies the village of Kadiköi, anc. *Chalcedon*.—Pop. of S., estimated 60,000, nearly all Mohammedan.

SCU'TARI (Turkish *Iskandere*, anc. *Scodra*): town of European Turkey, in n. Albania, cap. of the sanjak of S.; at the s. end of the Lake of S., at the point where the Bojana, issuing from it, is joined by the Drinassi. The lake is about 20 m. long, and abounds in fish. S. is a fortified town, with an old Venetian fortress on a commanding height: the town is straggling and ill-built. It has manufactories of arms and cotton goods, a bazaar; and ship-yards for building coasting-vessels. It has a large trade: (1884) 330 ships of 123,923 tons entered the port, and 325 of 123,713 tons cleared. Pop. (1885) 30,000, largely Mohammedans, with some Rom. Catholics.

## SCUTATE—SCUTTLE.

SCUTATE, a. *skū'tāt* [L. *scūtātus*, armed with a long shield—from *scūtum*, a shield]: in *bot.*, shaped like an anc. round buckler; in *zool.*, having a surface protected by large scales. SCUTA'TA, n. -*tāta*, in *entom.*, shield-bugs; a family of *Gcocoress*. They feed on the juices of trees and shrubs, occasionally attacking caterpillars. Some of the tropical species have splendid metallic tints, and fly in the sunshine.

SCUTCH, v. *skūch* [Norw. *skoko*, *skuku*, a swinglc for beating flax: comp. Gael. *sguids*, to switch, to dress flax]: to beat off or separate the woody parts of the stalks of flax by means of an instrument called a SCUTCHER—all the operations of dressing flax are now usually performed by a mill. SCUTCH, n. the scrapings of hides. SCUTCH'ING, imp.: N. the process of separating hemp or flax from the woody stalk. SCUTCHED, pp. *skūcht*.

SCUTCHEON, n. *skūch'ūn* [an abbreviation of ESCUTCHEON, which see]: the ornamental piece of metal-plate or of ivory, mother-of-pearl, etc., round a key-hole; an escutcheon. See SHIELD.

SCUTE, n. *skūt* [L. *scutum*, a buckler; in *OE.*, a small shield:] a scale, as of a fish or reptile; an ancient gold coin of France, valued at about 80 cents; the iron heel of a boot.

SCUTELLA, n. *skū-tē'lā* [L., a salver, dim. of *scutra*, a tray]: in *comp. anat.*, the horny plates with which the feet of birds are covered, especially in front.

SCUTELLUM, n. *skū-tē'lūm* [L. dim. of *scūtum*, shield or buckler]: in *bot.*, an outgrowth of the axis beneath the cotyledon in the embryo of grasses; a sort of rounded shield like fructification of some lichens. SCUTELLIFORM, a. *skū-tē'lī-fawrm* [L. *forma*, shape], or SCUTEL'LATE, a. -*lāt*, shaped like a shield.

SCUTIFORM, a. *skū-tī-fawrm* [L. *scūtum*, a shield; *forma*, shape]: shaped like a shield. SCUTIF'EROUS, a. -*tif-er-ūs* [L. *scūtum*, a shield; *fero*, I bear]: bearing a shield or buckler.

SCUTTLE, n. *skū'tl* [AS. *scutel*; Ger. *schüssel*; Dut. *schotel*, a dish, a bowl: L. *scutel'la*, a dish]: a broad shallow basket; a metal pan pail for holding coals.

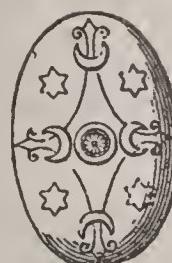
SCUTTLE, n. *skū'tl* [OF. *escoutilles*, the hatch of a ship: Sp. *escotilla*—from *escotar*, to slope, to hollow a garment about the neck]: in *ships*, a small hatchway or opening in the deck by which things are let down into the hold; a square hole in a roof with a movable cover: V. to cut holes in the bottom, the sides, or deck of a ship or boat for any purpose, generally for sinking her. SCUT'LING, imp. -*tling*. SCUT'TLED, pp. -*tld*. SCUTTLE-BUTT or -CASE, a cask of water, with a square hole, placed on the deck of a ship for immediate requirements.

SCUTTLE, v. *skū'tl* [a corruption of *scuddle*, a dim. of SCUD, which see:] to run with precipitation; to hurry furtively away: N. a running with affected haste; a quick bustling run. SCUT'LING, imp. SCUT'TLED, pp. -*tld*.

# SCUTTLE-FISH—SCYLLA AND CHARYBDIS.

SCUTTLE-FISH: for CUTTLEFISH, which see.

SCUTUM, n. *skū'tūm* [L. *scūtum*, a shield]: in *Rom. antiq.*, oblong or semi-cylindrical shield of the heavy-armed Roman soldier; in *anat.*, the knee-pan or patella.



Various Forms of the Roman Scutum.

SCYLLA, *sīl'lā*, AND CHARYBDIS, *ka-rīb'dīs*: rock and

whirlpool on the w. coast of s. Italy, between Italy and Sicily—the rock (Scylla) jutting out boldly into the sea, and forming a small peninsula at the n. entrance to the Straits of Messina: the whirlpool (Charybdis) in the Straits nearly opposite the entrance to the harbor of Messina. About the beginning of B.C. 5th c., a fort was built upon the rock (which is about 200 ft. high, and much hollowed out below by the action of the waves); and later a small town grew up, straggling down the slopes toward the sea. The navigation at this place was regarded by the ancients as attended with immense danger, which seems greatly exaggerated, for at the present day the risk is not more than attends the doubling of any ordinary cape. The rock, according to the Homeric legend (*Od. xii. 73*) which in later times became localized at the Straits of Messina, was the abode of a dreadful sea-monster, daughter of Crataeis, and named Scylla, possessing 12 feet, 6 long necks and mouths, each with three rows of sharp teeth, and who yelped like a dog, and snatched mariners out of passing vessels. There are other accounts of Scylla, one of which, in Ovid (*Metam. xiv. 1-74*), represents her as having been a beautiful maiden, beloved by the sea-god Glaucus, but who, by the jealousy of Circé, was changed into a monster having the upper part of the body that of a woman, while the lower part consisted of the tail of a fish or serpent surrounded by dogs.—The modern Scilla or Sciglio is a fortified town in the province of Reggio-Calabria, having large silk-works; pop. about 7,500, mostly seafaring people.

Charybdis (modern name *Galofaro*), the celebrated whirlpool, in ancient writings is mentioned always in conjunction with Scylla. The navigation of this whirlpool is, even at the present day, considered dangerous, and must have been exceedingly so to the small open ships of the ancients. A modern writer describes it as

## SCYMETAR—SCYROS.

being ‘an agitated water of from 70 to 90 fathoms in depth, circling in quick eddies.’ Homer places it immediately opposite Scylla, probably taking advantage of the poetic license to exaggerate the danger of the navigation, though, indeed, the whirlpool may have changed its situation since his days. The myth connected with it is, that under a large fig-tree, which grew out of a rock opposite Scylla, dwelt the monster Charybdis, who thrice every day sucked down the water of the sea, and thrice threw it up again.

According to the ancient myth, ships passing between these two dangers were said to have been wrecked by one while trying to avoid the other: hence in modern usage, ‘Between Scylla and Charybdis,’ between two great difficulties or perils.

**SCYMETAR:** see CIMETER.

**SCYPHUS**, n. *sī'fūs*, **SCYPHI**, n. plu. *sī'fī* [L. *scyphus*; Gr. *skuphos*, a cup or goblet]: in *classical antiquity*, a large drinking-cup used by the lower orders:

in *bot.*, the cup of a narcissus; a funnel-shaped corolla; in some lichens the funnel-shaped expansion of the podetia—i.e., the erect branched or simple growths springing from the horizontal thallus. **SCYPHIPHORA**, n. *sī-fīf'ō-rā* [Gr. *phoros*, bearing]: a shrub from the shores of the Molucca

Isles, constituting a genus of *Cinchonacēæ*—the flowers are in axillary corymbs, and have an undivided calyx.

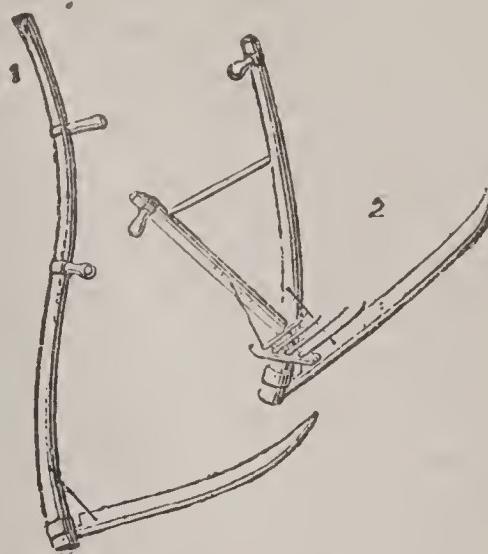
**SCYROS**, *ski'rōs* or *sī'rōs*, or **SKYRO**, *skē'rō*: island of the Grecian Archipelago, largest of the n. Sporades, 25 m. n.e. of Eubœa or Negropont; length 19 m.; 60 sq. m. S. is very mountainous and uncultivated in the s.; but the n. part, though also hilly, has several fertile plains, which produce fine wheat. Other products of S. are wine, oil, oranges, madder, bees-wax, and honey. As in anc. times, the island is celebrated for its goats, also for its small but hardy race of horses. The only town in the island is Scyro or St. George, on a high peak on the e. coast, site of ‘the lofty Scyros’ of Homer. There are several relics of antiquity in the island.—Pop. about 3,247.



Scyphus.

## SCYTHE—SCYTHIAN.

SCYTHE, n. *sīth* [Icel. *sigd*, a sickle: Low Ger. *segea*, a kind of sickle: Gael. *sgud*, to lop, to prune]: a large slightly curved steel blade fitted at right angles to a long



1, Common Scythe; 2, Cradle Scythe.

pole, used in mowing grass or reaping grain (see REAPING). SCYTHED, a. *sīthed*, armed with scythes, as an anc. chariot. SCYTHE'MAN, n. one who works with the scythe in mowing.

SCYTHIA, *sīth'ī-a*: name variously employed in ancient times to denote a vast, indefinite, and almost unknown territory, including the s. Russian steppe, n. and e. of the Black Sea, the Caspian, and the Sea of Aral. Its application seems to have been almost continuously extended to a wider region. But the term is not so much *geographical* as *ethnological*, and the only interest attaching to the barren catalogue of tribes and nations, given in the classical writers, springs from the hope of connecting these with a recognized race of modern times. Latham argues for the Scythians being the ancestors of the later *Turks*, and maintains their central and primitive abode to have been Independent Tartary, whence they spread w. round the Caspian into Russia, Transylvania, and perhaps even e. Hungary. Niebuhr and Neumann favor the hypothesis of a Mongol origin for the Scythians; while others regard them as Finns or Circassians. Zeuss finds evidence that the true Scythians were Aryans, akin to the Iranians; as Herodotus shows that their language was cognate to that of the Sarmatians (q.v.). In their mode of life they were mainly nomadic and pastoral, though we read of some trans-Danubian and Euxine tribes that were agricultural. Many of them were *Hippemolgi* ('mare-milkers').—The name Scythians seems to have been given in later antiquity to any remote, barbarous northern people, rude, fierce, and little known.

SCYTHIAN, a. *sīth'ī-ān*: pertaining to *Scythia*, a name variously applied in anc. times to indefinite regions of n. Europe and Asia now embraced in the Russian territories n. of the Black Sea, the Caspian, and the Sea of Aral: N. a native of Scythia.

## SDAIN—SEA.

SDAIN, or SDEIN, n. and v. *s'dān*: in *OE.* for DISDAIN, SDEINING, imp. *s'dān'īng*. SDEINED, pp. *s'dānd*. SDEINFUL, a. *s'dān'fūl*, *OE.* for DISDAINFUL.

SE, *sē* or *sē* [L. *se*, without, aside, by itself—the primary form of L. *sīnē*, without]: a prefix signifying ‘aside;’ a departing; a separating from, as in *secede*, to go aside.

SEA, n. *sē* [Icel. *sær*; Dan. *sö*; Ger. *see*; Goth. *saiws*, the sea, a lake]: vast collection of water, smaller than that of an ocean; the ocean (see below): a wave or large quantity of sea-water, as to ship a sea; the surging and swelling of the waves, as a heavy sea: any large quantity of water or other liquid; anything rough and tempestuous: in *Scrip.*, the term applied to the large basin or cistern made by Solomon: ADJ. of or relating to the sea, or connected with it. SEA-ACORN, another name for a BARNACLE, which see. SEA-ADDER, a fish of the British seas, of a slender form. SEA-AIR, the air above, near, or coming from the sea. SEA-ANEMONE, animal of very simple structure common in many seas, having many rows of tentacula or feelers, which when expanded give the appearance of a flower (see ANEMONE, SEA: ACTINIA). SEA-BEACH, the land lying along the margin of the sea. SEA-BEAR, the white or polar bear; also a species of seal (see OTARY). SEA-BEATEN, a. lashed by the waves. SEA-BEET, the wild beet, or *Bēta marit'ima*, ord. *Chenopodiācēæ*, the parent of the different varieties of garden beet and mangel-wurzel. SEA-BELLS, the *Convol'-vūlus soldanel'la*, ord. *Convol'vulacēæ*. SEA-BLUBBER, the jelly-fish. SEA-BOARD, n. the sea-shore; the coast; the nature and extent of the coast-line of a maritime country: ADJ. bordering upon the sea: AD. toward the sea. SEA-BOAT, a term applied to a ship to designate her qualities in bad weather at sea. SEA-BOUND, -ENCIRCLED, or -GIRT, a. surrounded by the sea. SEA-BREEZE, the wind blowing from the sea. SEA-BUCKTHORN, the *Hip'poph'aë rhamnoi'-dēs*, ord. *Elagnacēæ*. SEA-CALF, a name given to the common seal. SEA-CAT (see CHIMÆRA: and for a different fish so called, see WOLF-FISH). SEA-COAL, coal that has been carried from a distant part by sea. SEA-COAST, land immediately adjacent to the sea. SEA-COB, the sea-gull. SEA-COW, the popular name for the Manatee (q.v.); also for the walrus or sea-horse. SEA-CUCUMBER, marine animal, one species of which is used, when salted and dried, in China, as a delicacy, under the name *trepang*; a holothurian (see HOLOTHURIA). SEA-DEVIL, a hideous fish having a large head and vast mouth; the Fishing-frog or Angler (q.v.). SEA-DOG, the common seal: an old sailor. SEA-DUCK (see SCOTER). SEA-EAGLE (see ERNE). SEA-EAR, a mollusk with an ear-shaped univalve shell; the *haliotis*. SEA-EGG, or SEA-URCHIN, animal, the echinus (see ECHINIDÆ). SEA-ELEPHANT, a large seal having a proboscis somewhat like an elephant (see ELEPHANT, SEA). SEA-FAN (see GORGONIA). SEA-FARER, n. *sēfā-rér* [sea and fare (see FARE 1)]: one taking a journey by sea; a mariner. SEA'-FARING, a. -ring, following the occupation of a seaman. SEA-FENNEL, the samphire. SEA-FIGHT, a battle or action at sea. S.

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**FOWL**, any fowl that lives on or near the sea, and obtains its food from it. **SEA-FOX** (see FOX SHARK). **SEA-GAGE**, the depth which a vessel sinks in the water. **SEA-GIRKIN**, -gér'kin [see GHERKIN]: a sea-cucumber or holothurian. **SEA-GOD**, one of a fabulous class of beings supposed to preside over the sea. **SEA-GOING**, a. applied to a vessel sailing upon the deep sea, as distinguished from a river or coasting vessel. **SEA-GRASS**, the *Zostera marina*, known as sea-wrack or grass-weed, ord. *Naiadaceæ*. **SEA-GREEN**, a. of a faint green or sea color: N. a plant. **SEA-GUDGEON**, the black goby or rock-fish. **SEA-HARE**, a marine mollusk having a fancied resemblance to a hare; the *aplysia*. **SEA-HEDGEHOG**, the sea-urchin. **SEA-HOG**, the Porpoise (q.v.). **SEA-HORSE**, the walrus (see MORSE); also a species of pipe-fish, the **HIPPOCAMPUS** (q.v.). In her., a fabulous monster having its upper part like a horse, but with webbed feet, and united to the tail of a fish: a scalloped fin extends down the back. **SEA-JELLY**, one of the jelly-like animals called *Medusæ*. **SEA-KALE**, name applied to several plants of the cabbage tribe (see below). **SEA-KINGS**, the Northmen pirate-kings who infested the coast of Europe in the 8th and 9th c. **SEA-LARK**, a bird of the sandpiper kind; the ringed dotterel or plover. **SEA-LAWS**, mediaeval collections of recognized usages of the sea: see MERCANTILE LAW: HANSEATIC LEAGUE: OLÉRON, LAWS OF: NAVIGATION LAWS. **SEA-LEGS**, ability to walk on a ship's deck when pitching and rolling. **SEA-LEOPARD**, a marine animal of the seal family, spotted like a leopard. **SEA-LEVEL**, the level of the surface of the sea; any part whose surface is on the same level as the sea; the surface of the open sea taken as the point from which to estimate or measure the perpendicular heights or depressions of other surfaces, as of hills and mountains. **SEA-LION**, a popular name for those eared seals that have manes like lions (see OTARY). **SEAMAN**, n. sē'mān, a sailor or mariner; one who assists in the management of a ship at sea as his ordinary occupation (see SEAMEN). **ABLE-BODIED SEAMAN**, one who thoroughly understands the duties of a seaman, and is able to perform them efficiently; contracted A.B. **ORDINARY SEAMAN**, one less competent than an able seaman. **SEA'MANSHIP**, n. -shīp, knowledge of the art of managing and navigating a ship; the skill of a seaman. **SEA-MARK**, any elevated object on land which may serve for the direction of mariners. **SEA-MAT**, the common flustra, one of the polyzoa. **SEA-MEW**, -mū, a sea-gull. **SEA-MONSTER**, any huge animal whose habitat is the sea. **SEA-MOUSE**, an annelid animal found in the sea (see below). **SEA NEEDLE**, a fish having a slender body, long pointed jaws, and a forked tail; the garfish. **SEA-NETTLES**, certain kinds of jelly-fish which irritate or sting the skin when touched (see ACALYPHÆ). **SEA-NYMPH**, nymph or goddess of the sea. **SEA-ONION**, sea-side plant, also called the *squill*,



Sea-horse.

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which see. SEA-OOZE, soft mud on the sea-bottom. SEA-OTTER, a kind of otter found in the north Pacific, having fur extremely soft, and of a deep glossy black. SEA-PAD, a star-fish. SEA-PARROT (see AUK). SEA-PIE, a sea-fowl, the Oyster-catcher (q.v.): dish of food, common at sea, consisting of butcher-meat covered or inclosed with a thick paste of flour. SEA-PIECE, representation of a scene at sea. SEA-PINK, or SEA-THRIFT (see THRIFT). SEA-PORCUPINE (see DIODON). SEAPORT, a city or town having a harbor on or near the sea. SEA-RAVEN (see BULLHEAD). SEA-RISK, hazard at sea. SEA-ROBIN (see GURNARD). SEA-ROOM, distance from land sufficient for a ship to avoid anger of shipwreck on the coast, or of collision. SEA-SALT, common salt obtained from sea-water by evaporation. SEA-SICK, a. affected by the nausea caused by the rolling and pitching of a vessel at sea (see SEA-SICKNESS). SEASIDE, land or country adjacent to the sea (see SEA-SHORE). SEA-SLUG, the trepang or sea-cucumber (see HOLOTHURIA). SEA-SNAKE, a kind of snake commonly found in the seas of warm latitudes. SEA-SNIPE (see TRUMPET-FISH). SEA-SPIDER, or SPIDER-CRAB (see CRAB). SEA-SQUIRT (see ASCIDIA). SEA-SWALLOW, the common tern (see TERN): the stormy petrel. SEA-TANGLE, a common name for several species of sea-weed. SEA-TOSSED, violently moved about by the waves of the sea. SEA-UNICORN, the Narwhal (q.v.). SEA-URCHIN, an echinus (see ECHINIDÆ). SEA-WALL, strong wall built to resist the encroachments of the sea. SEAWARD, a. or ad. toward the sea, or directed toward it. SEA-WARE, sea-weeds, and the like, thrown up on the shore by the sea. SEA-WATER, natural water of the sea. SEAWEED, plants found growing in the sea. SEA-WOLF, species of seal: a fish so named from its fierceness and ravenousness (see CHIMÆRA: for a different fish so called, see WOLF-FISH). SEAWORTHY, applied to a ship in good condition and fit in all respects for a sea voyage. SEA-WRACK, Sea-grass (q.v.): see also FUCACEÆ: WRACK. AT SEA, away from land; upon the ocean; in a vague uncertain state. BEYOND THE SEA, out of a state or country, and in another which has been reached by sea. CROSS SEA, a sea when its waves move in different directions, also called a CHOPPING SEA. HALF SEAS OVER, half drunk. HEAVY SEA, the sea when the waves run high. ON THE HIGH SEAS, in the open ocean, as being the common highway of nations. TO GO TO SEA, or TO FOLLOW THE SEA, to follow the occupation of a sailor.

SEA: in its general signification, that vast expanse of salt water which covers the more depressed portion of the earth's surface, fills up each hollow and rift to a certain uniform level, completing as far as possible the spheroidicity of the globe, and divides its surface into two great and innumerable smaller portions—the old and new worlds and their islands. This immense body of water is distributed with not the least approach to regularity; but here forms a huge basin, there becomes a long and tortuous inlet or strait, which narrows or widens as the configuration of the land-surface on each side permits; nor is

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is placed symmetrically to the earth's axis of rotation, for the hemisphere of which the s.w. corner of England is the centre or pole contains the whole of the land-surface, if we except the triangular portion of S. America s. of Uruguay, Australia, New Zealand, the most of the East Indian Islands, and the land around the s. pole (of unknown extent). The other hemisphere is, with these exceptions, wholly water. From this irregular distribution of the sea over the earth's surface, and from the specific gravity of water being about  $\frac{1}{6}$  of that of the land, it necessarily follows that the centre of gravity of the whole globe does not correspond accurately with its centre of figure. The extent of sea-surface is estimated at 144,712,850 sq. m., or nearly  $\frac{4}{5}$  of the whole of the earth's surface; and its mass, on the supposition of an average depth of 2 m., is about  $\frac{1}{4000}$  of that of the whole globe; such estimates, however, can be considered at best only rough approximations. One of the most remarkable features of the sea is its continuity or oneness; for though numerous large stretches of salt water, e.g., the Sea of Azov, Black, Mediterranean, and Baltic Seas, the Gulf of Mexico, and others, have barely avoided becoming detached lakes, very few detached lakes are found on the earth's surface; and with the exception of the Caspian and Aral Seas, they are of small size.

*Composition, Specific Gravity, and Temperature of the Sea.*—The ocean consists of salt water, and from its continual motion, under the influence of currents and waves, preserves, generally speaking, uniform saltiness. Under special circumstances, however, the saltiness increases, as by the excess of evaporation over the fresh-water influx in the Mediterranean and Red Seas, and about the n. and s. limits of the tropical belt; and decreases, by the contrary cause, in the Sea of Azov, Black Sea, Baltic Sea, and in the polar regions. See TRADE-WINDS. The origin of the saltiness of the sea is accounted for when we consider that the chloride of sodium and other soluble salts which form constituent ingredients of the globe, are being constantly washed out of the soil and rocks by rain and springs, and carried down by the rivers; and as the evaporation from the sea which feeds the rivers carries none of the dissolved matter back to the land, the tendency is to accumulate in the sea. The principal ingredients in sea-water are chloride of sodium or common salt, with salts of magnesia and lime; for a more exact analysis, see WATER. The average specific gravity of the sea, out of reach of the exceptional action of the melting of snow, rain, or river-water, is (at 62° F.) 1·02655. The slight variations in the saltiness of the sea necessarily produce corresponding changes in its specific gravity; accordingly, on the n. and s. limits of the torrid zone the mean specific gravity of the sea is, in different longitudes, 1·02785, 1·0268; while at the equatorial calm-belt it is 1·0252, 1·0267; and on the whole shows a tendency to diminish as the latitude increases, Beechey having found it 1·0258 in lats. 55°—60° n. and s. in the Pacific, and King 1·0255 in corresponding latitudes in the

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Atlantic. It is considerably diminished near the mouths of rivers, and in those inlets or semi-lacustrine arms which are the depositaries of more river-water than compensates for their evaporation, as in the Black Sea, where it is 1·0143, and in the Baltic, only 1·0086.

The temperature of the sea, where it is not affected by currents from a warmer or colder region, necessarily corresponds to the normal temperature of the latitude; but this is true only of the water at and near the surface, for it has been recently proved by observations on deep-sea temperature by Carpenter, Wyville Thomson, and others, that the temperature rapidly diminishes with the depth, particularly in tropical and temperate regions, till at great depths ice-cold water is everywhere found. Thus, from the extensive observations made by H. M. S. *Challenger* in the n. Atlantic 1873, it is shown that at the equator, where the surface-temperature is about 80°, the decrease with the depth is so rapid, that at 60 fathoms from the surface the temperature is only 61°·5; at 150 fathoms it is 50°; at 700 fathoms the temperature has fallen to 40°; at about 1,600 fathoms, to 36°. Below this it diminishes at a much slower rate, till it falls nearly to freezing at all great depths which are connected by under-currents with the Antarctic or Arctic Seas. The sea-water of the upper 60 or 80 fathoms is affected by the solar heat. Immediately beneath this sun-heated upper stratum, it is remarkable that all the water in the n. Atlantic, as far as lat. 40°, is warmer than that at the same depth under the equator. The mean temperature of the upper 1,500 fathoms in the n. Atlantic is 4°·5 warmer than the same upper stratum at the equator. As regards the temperature of the water at the bottom, at all stations between Bermuda and the equator on the e. side of the Atlantic, the temperature is remarkably uniform at 35°·2; in the Bay of Biscay, to the n.e. of this line, it is 1° warmer; s.w. of the same line, 1° colder; whereas, further s. at the equator, on the w. side of the Atlantic, it is 32°·4, or 2°·8 colder. This last fact is very important, since, from the fact that at the equator the bottom temperature is 32°·4, and that at all stations n. of it the bottom temperature is warmer, it follows that the cold water at the bottom of the Atlantic, as far n. as the Azores and Bay of Biscay, equally with that at the equator, is derived from an Antarctic, and not from an Arctic source. This cold Antarctic current, entering the n. Atlantic, is found between 1,700 fathoms and the bottom, a total thickness of 700 fathoms. Ice-cold water has been found at the bottom in the Arabian Sea also. In land-locked seas, such as the Mediterranean, whose deep water is not in communication with that of the Atlantic, owing to the shallowness of the sea at the Straits of Gibraltar, the bottom temperature does not fall so low as that of the ocean. Thus the temperature of the Mediterranean at 1,508 fathoms is 55°, whereas at this depth in the ocean it is as low as 36°. See ISOTHERMAL LINES. The highest surface-temperature does not correspond with the equator, but owing to the disturbing influence of currents is in the following regions: between Sumatra and the

## SEA.

Zanzibar coast; e. of the Philippine Islands, to long.  $170^{\circ}$  e.; e. of Cuba and Florida; and n.e. of Cape St. Roque.

*Color and Phosphorescence of the Sea.*—The color of the ocean, when free from admixture of foreign substances, e.g., animalcules, vegetable organisms, excessive rain, or the tinted waters of swollen rivers, is a pure deep blue, which becomes less marked where the water is of less depth. A 'different' color of sea-water is due to the presence of some foreign substance, e.g., the red, brown, and white patches of the Pacific and Indian Oceans, to the presence of swarms of animalcules; and the colors of the Red and Yellow Seas, to matters of vegetable origin. The Rhone, at its emergence from the Lake of Geneva, and the lake itself, exhibit an intensity of blue far surpassing that of any sea. The phosphorescence of the sea is due to the presence of myriads of invertebrata, especially rhizopoda, tunicata, etc.: see LUMINOSITY OF ORGANIC BEINGS.

*Depth of the Sea.*—Till very recently, it might be said that, except the more frequented strips along the coast, and such other portions as afforded anchorage-ground, our knowledge of the depth of the ocean amounted to nothing. It is true that deep-sea soundings had been frequently made, but from the necessary defectiveness of the ordinary 'lead,' and inattention to the effect of under-currents in destroying the perpendicularity of the line, little dependence could be placed on the results. It is chiefly in the Atlantic that the new and trustworthy method of sounding (see SOUNDING, DEEP-SEA) has been practiced, and the contours of its bottom may now be considered as fairly ascertained. The greatest depth measured by the *Challenger* (n. lat.  $19^{\circ} 41'$ , w. long.  $65^{\circ} 7'$ ) was 3,875 fathoms, or 23,250 ft. (about 4·4 m.). Over a great extent of the area, the depth ranges between 2,000 and 3,000 fathoms. Along the middle runs an irregular ridge, on which the depth is less than 2,000 fathoms, and n. of  $50^{\circ}$  a plateau of similar depth extends, with little interruption, from Ireland to Newfoundland, on which the telegraph cables are laid. Nowhere round the British Isles is the sea deeper than 400 ft. In the Pacific, several tracks of soundings were obtained during the *Challenger* expedition (1873-75). From the numerous islands which stud the Pacific, one might be led to assume its comparative shallowness; but this is far from being the case, for the islands rise abruptly from the bottom, and very deep soundings have been obtained near their shores. Over a great part of the area, the depth is over 2,000 fathoms; in the deeper parts, it ranges from 3,000 to over 4,000 fathoms. The deepest sounding got 4,475 fathoms (26,850 ft., or more than 5 m.), n. lat.  $11^{\circ} 24'$ , e. long.  $143^{\circ} 16'$ , near the Ladrone Islands. From the remarkable gentleness of slope of the bed of the Arctic Ocean n. of Siberia, the line giving only 14-15 fathoms at 150 m. from the shore, and from the configuration of its bed n. of America, it is generally concluded to be by far the shallowest of the oceans. Of the depth of the Antarctic Ocean, little is known, but it is supposed to be deeper than its antipodal kinsman. Near the Antarctic Circle, s.e. from Kerguelen,

## SEA.

the *Challenger* took a few soundings varying from 1,300 to 1,975 fathoms. From all hitherto observed, the land-surface under water seems the counterpart as regards eminences and hollows, chasms, valleys, plateaus, etc., of the land-surface above.—See CHALLENGER EXPEDITION: DREDGE: ATLANTIC OCEAN: PACIFIC OCEAN: HYDROGRAPHY: SOUNDING, DEEP-SEA.

*Motion of the Sea.*—The sea is in a state of perpetual restlessness, its motion being either a vertical oscillation, or an actual transference of its waters from one place to another. The first motion, which constitutes *waves*, is due either to the attraction of the sun and moon on such a mobile body as the sea (see TIDES), or to the impulsive action of the winds which blow over its surface (see WAVES); the second motion arises from the sun, which, directly through its heat, and indirectly by scorching dry winds, produces evaporation, to a great extent, of the parts most exposed to its influence, and by its similar action on the atmosphere (see TRADE-WINDS), causes a transference of this vapor to remote latitudes, where it descends as rain, and, destroying the equilibrium of the sea, gives rises to *currents*. For the nature of these currents, see GULF STREAM: for the chief currents of each ocean, see the title of each ocean. This constant motion of the sea is of great service in tending to equalize the temperature of different parts of the globe; it also produces remarkable changes in the form of coasts, eating into rocks, converting low-lying lands into shoals and sand-banks, or carrying away the earthy materials, and depositing them in some distant region. The erosive action of the sea is generally almost imperceptible during several years, but in course of two or three centuries the magnitude of the changes effected by it is almost incredible.

On the economic value of the sea as a purifier and as a commercial highway, it is unnecessary to dilate. For some peculiar phenomena of the sea, see ICEBERGS: AURORA BOREALIS: WHIRLPOOLS: CORAL: the five great oceans (see OCEAN): ETC.

The term *Sea* is applied in a more limited though indefinite sense to an offshoot of one of the oceans, as to the Black, Baltic, Red, Okhotsk Seas, to any portion of an ocean which from its position or configuration is considered deserving of a special name, and to the two great inland salt lakes of central Asia, the Caspian and Aral Seas: see these and similar titles: also DEAD SEA.—See further, POLAR EXPEDITIONS: GEOGRAPHY: METEOROLOGY: ETC.

## SEA—SEABURY.

SEA, SOVEREIGNTY OF THE: right formerly claimed for England, by Blackstone, who contended that the main or high seas are part of the realm of England, as the courts of admiralty have jurisdiction there; though he granted that they are not subject to common law. But the law of nations, as now universally understood, recognizes no dominion in any one nation over the high seas, which are the highway of all nations, and governed by the public law of the civilized world. A right of Brit. sovereignty has, however, long been claimed over the four seas surrounding the Brit. Isles; it was strongly asserted by Selden, and denied by Grotius; and measures were taken to vindicate the right in the reign of Charles I. Every nation has undoubtedly a right to the exclusive dominion of the sea within a certain distance from its shore, depending on the usage of the country. This right of lordship includes the right to free navigation, to fishing, to taking wrecks, the forbidding passage to enemies, the right of flag, of jurisdiction, etc. See INTERNATIONAL LAW: BLOCKADE: NEUTRALIS.

SEABURY, *sē'bēr-ī*, SAMUEL, D.D.: first Prot. Episc. bishop of Conn.: 1729–1796, Feb. 25; b. Groton, Conn.; son of Samuel S., who was originally a Congl. preacher, afterward Episc. rector at New London, and at Hempstead, N. Y. Young S. graduated at Yale 1748, studied theol. under his father, and afterward medicine at Edinburgh, Scotland. Ordained deacon and priest by the bp. of Lincoln, England, he ministered at New Brunswick, N. J., 1754–57, at Newtown, Long Island, 1757–67, and at Westchester, N. Y. His anti-revolutionary pamphlets caused his imprisonment at New Haven a few weeks, after which he was chaplain of the king's troops in New York, also supporting himself by practicing medicine. He was elected bishop by the clergy of Conn., and went to London to be consecrated to that office; but a delay occurred of more than a year because one who was not an English subject could not take the oath of allegiance required of English bishops. He was at last invested with the office by Scottish prelates, who had no temporalities to lose, the ceremony taking place at Aberdeen 1784. Afterward, 1789, he united with English bishops in consecrating Bp. Claggett, through whom all the Prot. Episc. bishops of the United States trace their ecclesiastical descent, and in whom a double line of episcopal authority—that of the Scottish and the English Church—was united. Bishop S. lived in New London till his death, officiating also as rector of St. James Church. He was the first to preside as bishop in the Episc. convocations of a number of states. His publications, other than political, were several vols. of sermons; and his life and correspondence was published by Eben Edwards Beardsley, D.D. (Boston 1881).

## SEABURY—SEA-KALE.

SEA'BURY, SAMUEL, D.D.: Prot. Episc. clergyman, and a teacher, editor, and author: 1801, June 9—1872, Oct. 10; b. New London, Conn.; grandson of Bp. Samuel S. He was educated by private tutors, and ordained 1826. He was prof. of languages in Flushing Institute and St. Paul's Coll.; ed. of *The Churchman* 1834-49; rector of the Church of the Annunciation, New York, 1838-68; and prof. of biblical learning in the General Theol. Seminary, New York, 1862-72. Among his writings were: *Hist. Sketch of Augustine* (1833); *The Continuity of the Church of England in the 16th Century* (1853); *The Supremacy and Obligation of Conscience* (1860); *Mary the Virgin* (1868); *Theory and Use of the Christian Calendar* (1872); and a work in defense of Amer. slavery 1861.—His son, WILLIAM JONES S., b. 1837, succeeded his father in the Church of the Annunciation, was chosen prof. of eccles. polity in the General Theol. Seminary, and has published *Discourses on the Nature and Work of the Holy Spirit* (1874).

SEA' GRAPE (*Ephedra*): genus of plants of nat. order *Gnetaceæ*: the order consists of a small number of species, closely allied in botanical characters to the *Coniferae*, and by many botanists united with that order, though differing much in appearance. The *Gnetaceæ* are small trees, or twiggy shrubs, with opposite or clustered branches and jointed stems, whence they are sometimes called JOINT-FIRS. They secrete not resinous but watery matter. The development of the ovule is very peculiar; it has a projecting process formed from the intimate covering of the nucleus.

SEAHAM HARBOR, *sē'am hār'bēr*: seaport in the county of Durham, England; 6 m. s. of Sunderland. Its excellent harbor is furnished with wharves, quays, and jetties; and the town contains bottle-works, blast-furnaces, and chemical works.—Pop. (1891) 8,856.

SEA'-KALE (*Crambe maritima*: see CRAMBE): perennial plant with large roundish sinuated sea-green leaves, found on the sea-shores in various parts of Europe. The blanched sprouts are a favorite esculent in Britain, and its cultivation there has become general.—In this country it is not much grown, either in private gardens or for market, but it is worthy of extensive cultivation. It needs a deep, mellow soil, and the stalks must be blanched to fit them for use. Propagation is effected by seeds or by root-cuttings, which should be planted in rows 3 ft. apart, and at least 1 ft. apart in the row. The second year from cuttings, or the third year from seed, plants will be large enough for use. Frequent cultivation should be given, and the ground should be kept free from weeds. At the north the crowns of the plants should be covered to protect them from the severe cold of winter. Blanching is effected by covering the plants, early in the spring, with inverted flower-pots, leaves or sand. The plants will be productive for several seasons, but the ground should be manured every year. Forcing can be readily accomplished in hotbeds or greenhouses.

## SEAL.

SEAL, n. *sēl* [OF. *seel*, a seal—from L. *sigillum*, a seal—from *signum*, a mark: It. *sigillo*; Ger. *siegel*; Sp. *sello*, a signet, a seal]: engraved or inscribed piece of metal, precious stone, pebble, or piece of metal, on which some image or device is engraved, used for impressing the wax that closes a letter, or that which is attached to a deed or other parchment or writing (see below): the wax or other substance sealing a deed or making fast a letter (see SEAL-ING-WAX): that which ratifies or confirms; act of confirmation; that which shuts or makes fast: V. to fasten with a seal; to set or affix a seal to; to ratify; to make fast; to authenticate with a stamp; to inclose, hide, or conceal; to imprint on the mind. SEAL'ING, imp. SEALED, pp. *sēld*: ADJ. fastened or furnished with a seal; confirmed. SEAL'ER, n. -*er*, one who seals; officer in chancery who seals writs and instruments; in the *United States*, inspector of weights and measures, also of leather. SEAL-ENGRAVING, art of engraving precious stones for seals. GREAT SEAL, the state seal of a nation: in the United Kingdom, impressions from the great seal must be attached to royal charters, grants of land, commissions, etc., to render them valid—this is called ‘passing the great seal’ (see GREAT SEAL) PRIVY SEAL, personal seal of the sovereign, used in Britain in rendering legal certain instruments of minor importance (see PRIVY SEAL). Note.—The *state seals* in Britain are (1) the ‘Signet,’ which contains the royal arms and supporters; (2) one of a smaller size having an escutcheon of the king’s arms only; and (3) a still smaller called the ‘cachet,’ similarly engraved, and used only for sealing the sovereign’s letters to other sovereigns.—For Govt. Seal in the United States, see below.

SEAL: impression on wax or other soft substance, made from a die or matrix of metal, a gem, or other material. The stamp which yields the impression is also called the seal. In Egypt, seals were in use at an early period, the matrix generally forming part of a ring (see GEM: RING). Devices of a variety of sorts were in use at Rome, by the earlier emperors and private individuals. The emperors, after Constantine, introduced *bulla* or leaden seals; and their use was continued after the fall of the Western Empire by the popes, who attached them to documents by cords or bands. On the earlier papal seals are monograms of the pope; afterward the great seal contained the name of the pope in full, and a cross between the heads of St. Peter and St. Paul, while the papal privy seal, impressed not on lead but on wax, known as the *Seal of the Fisherman*, represented St. Peter fishing. In the 9th and 10th c. we find Charlemagne, the Byzantine emperors, and the Venetian doges, occasionally sealing with gold; and we have an instance as late as the 16th c. of a gold seal appended to the treaty of the Field of the Cloth of Gold, between Henry VIII. and Francis I.

Seals were not much used in England till after the Norman conquest. On the royal great seals was the king in armor on a caparisoned horse galloping, his arms

## SEAL.

being shown on his shield after the period when arms came into use; and the reverse represented the king seated on a throne. The great seals of Scotland begin with Duncan II., in the end of the 11th c. In both countries there were also the privy seals with the royal arms only.



Great Seal of William the Conqueror.

Ecclesiastical seals appear first in the 9th c., and attained great beauty in the 13th and 14th. They are of the pointed oval form known as *Vesica piscis*; and have

## SEAL.

for subjects a figure of the bishop, sometimes of the Trinity, the Virgin, or a patron saint, seated under an elaborate architectural canopy. The arms of the bishop are often added.

Under the Norman monarchs of England, sealing became a legal formality, necessary to authentication of a deed; and from the 13th c. the seals of all persons of noble or gentle birth represented their armorial ensigns. The seal was generally appended to the document by passing a strip of parchment or a cord through a slit in its lower edge; and the ends being held together, the wax was pressed or molded round them a short distance from the extremity, and the matrix impressed on it. Occasionally the seal was not pendant, but the wax was spread on the deed. The colored wax with the impression was sometimes imbedded in a mass of white wax forming a protective border to it. In England, a seal is still essential to all legal instruments by which real estate is conveyed; but since subscription also has become necessary, the practice of sealing has degenerated into a mere formality. The custom was gradually introduced of covering the wax with white paper, on which the impression was made, and latterly wafers have been considered a sufficient substitute for seals.

The use of corporate seals by towns and boroughs dates as far back as the 12th c. The earlier corporate seals bear the town gates, city walls, or some similar device; the use of corporate arms did not begin till the latter half of the 14th century.

The use of seals in closing letters has of late years been almost displaced by that of adhesive envelopes; though seals are still used in ceremonious letters.—For their governmental use, see GREAT SEAL: PRIVY SEAL: see also below.

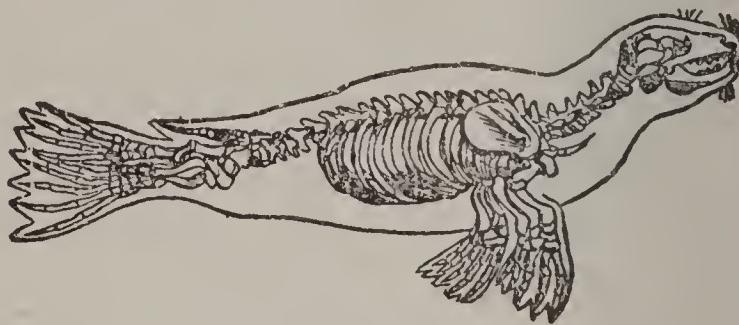
In the states of the American Union the device of a seal, as of a public officer, e.g., a notary, or of a corporation, may be impressed on the paper of the instrument; usually the seal of a public officer consists of a disk of paper bearing the device of the seal attached to the instrument. The seal of a private individual may be a disk of paper, or even a mere scroll or flourish near his signature, and between the letters L. S., i.e., *locus sigilli* (place of the seal).

*Seal of the United States.*—The following was adopted 1782, June 20: ARMS, paleways of 13 pieces argent and gules; a chief azure; the escutcheon on the breast of the American eagle display proper, holding in his dexter talon an olive-branch, and in his sinister a bundle of 13 arrows, all proper; and in his beak a scroll, inscribed with this motto, '*E pluribus unum.*' For the CREST: over the head of the eagle which appears above the escutcheon, a glory, or breaking through a cloud, proper, and surrounding 13 stars, forming a constellation argent on an azure field. REVERSE, a pyramid unfinished. In the zenith, an eye in a triangle, surrounded with a glory proper: over the eye, these words, '*Annuit cœptis.*' On the base of the

## SEAL.

pyramid, the numerical letters MDCCLXXVI; and under neath, the following motto: *Novus ordo sectorum*.—The sec. of state is custodian of the great seal of the United States, and affixes it to all executive proclamations, to various commissions, and to warrants for pardon and the extradition of fugitive criminals.

SEAL, n. *sēl* [Icel. *selr*; Dan. *sæl*, a seal]: marine amphibious mammal of various species, chiefly inhabiting the sea-coasts of the higher latitudes, much sought after for its skin and oil; the sea-calf; the sea-dog. SEAL'ING, n. the pursuit of seals for their skin and oil.—The *Seal (Phoca)* is a carnivorous mammal, type of the family *Phocidæ*. The old Linnæan genus *Phoca* included the Morse (q.v.) or Walrus. The *Phocidæ* or seals proper, the *Otariidæ* (sec OTARY), and the walrus, constitute the section *Pinnigrada* or *Pinnipedia* of the order *Carnivora* (q.v.).



Skeleton of Seal, with Outline of the Figure.

Their structure is perfectly adapted to an aquatic life, and they live chiefly in water, but spend part of their time on shore, reposing and basking in the sunshine on rocks, sand-banks, ice-fields, or beaches; and they bring forth their young on shore. The body is elongated, and tapers from the chest to the tail; the head somewhat resembles that of a dog, and in most of the species the brain is large; the feet are short, and little more than the paw projects beyond the skin of the body; all the feet are thoroughly webbed, and five-toed; the fore-feet are placed like those of other quadrupeds; but the hind-feet are directed backward, like a prolongation of the body, and between them is a short tail. The toes, particularly of the hind-feet, are capable of being spread out very widely in swimming, so as to give great propulsive power. The movements of seals in the water are very rapid and graceful; on land, they are very peculiar; even the fore-feet being little used or not at all, but the body contracted by an upward bending of the spine, and so thrown forward by a succession of jerks; in which way, however, a S. can escape from all but fleet assailants. The flexibility of the spine is very remarkable, and depends on the very large intervertebral cartilages formed of fibrous concentric rings. The muscles, which are connected with the spine on all sides are of great strength.

The teeth differ considerably in the different genera, but in all are adapted for seizure of slippery prey, the

## SEAL.

chief food of seals being fishes, though they do not reject other animal food, and are said even to feed in part on vegetable substances. Their incisors are either six in the upper jaw and four in the lower, or four in the upper and two in the lower; they all have large and strong canine teeth; and the molars, usually five or six on each side in each jaw, are either sharp-edged or conical, and beset with points. Seals have a remarkable habit of swallowing large stones, for which no probable reason has been conjectured. Their stomachs are often found in part filled with stones. The stomach is quite simple; the gullet (*œsophagus*) enters it at the left extremity; the cæcum is short, the intestinal canal long.

The respiration of seals is extremely slow, about two minutes intervening between one breath and another, when the animal is on land and in full activity. A S. has been known to remain 25 minutes under water. Their slowness of respiration and power of suspending it for a considerable time enable them to pursue their prey under water. The fur is very smooth, and abundantly lubricated with an oily secretion. There is generally an inner coating of rich fur, through which grow long hairs, forming an outer covering. Another adaptation to aquatic life and cold climates appears in a layer of fat immediately under the skin—from which *Seal Oil* is obtained—serving not only for support when food is scarce, but for protection from cold, and at the same time rendering the whole body lighter. The nostrils are capable of being readily and completely closed, and are so while the S. is under water; and there is a similar provision for the ears; while the eye, which is large, exhibits remarkable peculiarities, supposed to be intended for its adaptation for use in both air and water. The face is provided with strong whiskers, connected at their base with large nerves.

Seals produce young only once a year; sometimes one, sometimes two, at a birth. Not long after their birth, the young are conducted by the mother into the sea. Many, if not all, of the species are polygamous. Fierce fights occur among the males.

Seals are on their guard against the approach of man, where they have been much molested; but where they have not been attacked, they are far from shy, and approach very close to boats, or to men on shore, as if animated by curiosity. They are much affected by musical sounds. A flute is said to attract seals to a boat, where they have not learned caution from sore experience; and the ringing of the church bell at Hoy, in Orkney, has very often caused the appearance of numerous seals in the little bay. Seals possess all the five senses in great perfection.

The Common S. and some of the other species are very intelligent; but there is considerable difference in this respect among the species. The Common S. and some others have often been tamed, and are capable of living long in domestication, if freely supplied with water. They become very familiar with those who attend to them; are very fond of caresses and of notice; recognize their name like

# PLATE 4.

Sculpture  
Modern



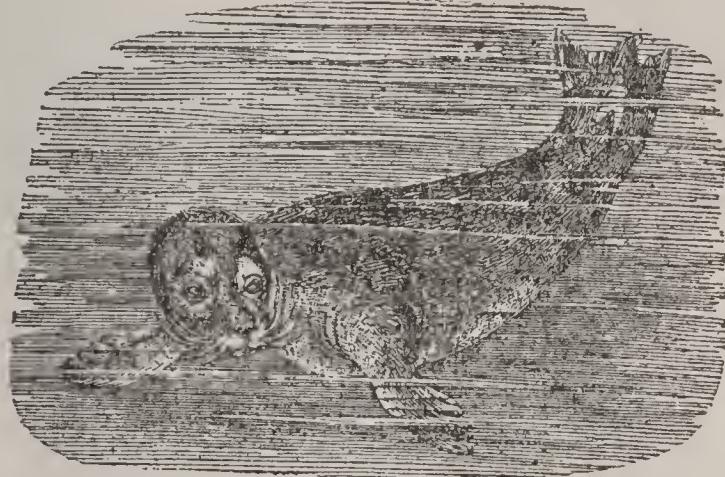
1. Athene leading the youth in the battle—*Blasser*, 1853.
2. Monument to the Duchess of Leicester—*Gibson*, 1852.
3. Raphael—*Hahnel*, 1852.
4. St. George and the Dragon—*Fernkorn*, 1852.
5. Captiol Cupid *Fraikin*, 1851.
7. Horse trainer—*Hofer*, 1848.
8. " " " —*Clodt*, 1842.

## SEAL.

dogs, and readily learn many little tricks, of which advantage has been taken for exhibitions.

Seals are found in all colder parts of the world, most abundantly in the arctic and antarctic regions; some also in temperate climates, as far s. as the Mediterranean, and as far n. as the La Plata. Some of them ascend rivers to some distance in pursuit of salmon and other fish. They are found in the Caspian Sea, and even in the fresh-water Lake Baikal.

The species are numerous, but in no group of Mammalia does more remain for further investigation. Seals are divided into two principal groups—*Seals*, strictly so called, and *Otaries* (see OTARY); the former distinguished by the complete lack of external ears, which the latter possess, and by their dentition. The true seals have been further subdivided into genera, characterized chiefly by their dentition. In the restricted genus *Phoca*, or *Calocephalus*, the incisors are pointed and sharp-edged, six above and four below. The Common or Harbor S. (*Phoca vitulina*) is found on both coasts of the Atlantic, and as far s. as New York; and in the Arctic Ocean. It is common on the wilder and more unfrequented parts of the Brit. coast, particularly in the north. It is remarkably distinguished, even among its nearest congeners, by the oblique position of the molar teeth. The fur is yellowish, variously spotted, and marked with brown. The whole length is 3 to 5 ft. Its delight in



Common Seal (*P. vitulina*), attitude when swimming.

salmon as food is so great that it has been known to haunt the neighborhood of a salmon-net for a long time, and to take the fish after they were entrapped in it. The Common S. is seen usually in small herds. Its skin and oil are of considerable mercantile importance. The skin is dressed with the fur on, to make caps, etc., or is tanned and used as leather. The oil, when made before decay has begun, is colorless and nearly inodorous; it is much superior to whale-oil. The flesh is much used for food in far northern countries, as is that of all the other species which those regions produce. It is not easy to shoot a seal. While flint-locks were in use, the S. always dived so quickly on seeing the flash as usually to escape the ball. The popular name SEA-CALF, and the specific name *vitulina*, have

## SEAL.

reference to a supposed resemblance of the voice to that of a calf.—The HARP S. (*P. Grœnlandicus*) receives its popu-



Harp Seal (*Phoca Grœnlandicus*), attitude on land.

lar name from a large, black, crescent-shaped mark on each side of the back. It belongs chiefly to northern regions. It is 6 to 8 or even 9 ft. in length.—The GREAT S., or BEARDED S. (*Erignathus barbatus*), plentiful on the coasts of Greenland, is generally 9 or 10 ft. long, sometimes more.—The ROUGH or BRISTLED S. (*P. hispida*) frequents quiet bays on the coasts of Greenland, where many thousands are annually killed for their skins and oil. It is the smallest of the northern species.—The GRAY S. (*Halichærus gryphus*), has a very flat head, and attains great size.—The CRESTED S., or HOODED S. (*Crystophora cristata*) is remarkable for elevation of the septum of the nose of the adult male into a crest, which supports a hood covering



Hooded or Crested Seal.

the head, and capable of being distended and elevated or depressed at pleasure: the use of this appendage is not known. This S. is plentiful on the coasts of Greenland and n. parts of N. America.—The seals of the southern seas are quite distinct from those of the northern. SEA LEOPARD, or LEOPARD S., is a name applied to several spotted species. By far the largest of all the seals is the ELEPHANT S., or Sea Elephant of the southern seas (*Macrorhinus proboscideus*), which, with the Crested S., belongs to the sub-family *Cystophorinæ*. The others above mentioned are of the sub-

## SEALING.

family *Phocinæ*. The *Otariidæ*, or Eared Seals, include the sea-bears, of which the *Callorhinus ursinus* is the most important in the fur-trade, the smaller fur seals of the s. Pacific being of the genus *Arctocephalus*: see OTARY. In this family are the sea-lions, of a number of genera, chiefly of the Pacific. *Eumetopias Stelleri*, of the n. Pacific, is the largest, 11-13 ft., and attaining 1,200 lbs. The sea-lion of the rocks near San Francisco is *Zalophus Californicus*, ranging from Cal. to Japan. The Eared Seals have longer fore-limbs, with more power of assuming a semi-erect posture.

Seals are to some extent migratory, though their migrations do not extend to very great distances and are probably regulated by the abundance or scarcity of food. The time of the return of certain species to certain coasts is confidently reckoned on by the natives of the north and by seal-hunters.

SEALING, or SEAL-FISHERY, as it is often called : the occupation of hunting seals. Nearly all of the seals, if not all, are gregarious, and one seems to be always placed on the watch, where danger is apprehended from bears or from hunters. They climb up through holes in the ice-fields of the polar seas, even when there is a height of several ft. from the water, but it is difficult for the hunter to place himself between them and the hole. Seal-hunting is not free from danger, an enraged S. being a formidable antagonist, at least to the inexperienced.

The hunting of seals of the family *Phocidæ* ('hair seals') is carried on in Newfoundland, Labrador, Nova Zembla, the Arctic Ocean, the n. and s. Pacific, etc. The fur seal (*Otariidæ* family) is not found in the n. Atlantic, but occurs in both the Atlantic and Pacific from the tropics to the Antarctic ice-field, and in the n. Pacific; its favorite haunts are in Behring Sea. The Pribylov Islands, owned by the United States, are resorted to in the breeding season by the fur seal in enormous numbers, and the exclusive right of the 'fishery' on these islands is farmed out by the govt. to the Alaska Commercial Co. The claim of jurisdiction in Behring Sea, so far at least as involves protection of the seals from destruction by untimely or excessive pursuit, has been made by the United States, including the right under certain circumstances to exclude from the fisheries, whether on the islands or in the sea, the sealers of other nations. Great Britain has maintained that Behring Sea is an 'open' sea in the sense that the ships and subjects of all nations have equal rights which preclude the right of search and capture of foreign vessels by U. S. cruisers. The two nations concluded an agreement (1891, June 15) for one year to prevent the capture of seals by the citizens of either country in Behring Sea or on the islands, except that the Alaska Commercial Co. was to be permitted to take 7,500 seals for the sustentation of the natives. In the mean time the representatives of England and the United States would investigate the whole case, and confer with a view to terminating the controversy. But, 1892, June, 25 Brit. sealing schooners were seized by the U. S.

## SEALING.

for violating revenue laws, and in Aug. sealers from Brit. Columbia were also seized by Russia, whose govt. claimed jurisdiction over 1,000 m. in Bering sea despite the fact that the U. S. by the purchase of Alaska had laid claim to this right. To end the controversy the U. S. signed a treaty with Gt. Brit. (1892, Feb., ratified May 7) providing for settlement of the dispute by arbitration. The court of arbitrators met at Paris 1893 (Feb.), began its deliberations Apr. 4, and delivered its decision Aug. 15. While on five points this was adverse to the U. S., the taking of seals within a zone of 60 m. around the Pribilof islands was prohibited, and a close season was established for the N. Pacific Ocean and Bering sea.

The question of damages was decided adversely to the U. S., but the amount to be paid to Gt. Brit. was left for further diplomatic action. A treaty between the U. S. and Gt. Brit. for appointment of a commission to assess damages was ratified by the U. S. senate 1896, Apr. 15, and two U. S. commissioners were appointed in July. In Nov. the commission began its deliberations at Victoria, B. C.

In 1897, Nov., the U. S. signed treaties with Russia and Japan for protection of seals, to continue in force for one year. Later, negotiations between Gt. Brit., Canada, and the U. S. for a conference looking toward protecting the seals from extermination, were opened (Nov. 10) in Washington, D. C. The U. S. was represented by Charles S. Hamlin, John W. Foster, and Prof. David S. Jordan, and while the British interests were intrusted to Sir Julian Pauncefote and Prof. Thompson, those of the Canadian dominion were in the care of Sir Wilfrid Laurier, Sir Louis Davies, and Prof. Macoun.

On 1898, Jan. 14, the report and awards of the commission were presented to congress. The principal of the claims allowed to the owners of the vessels amounted to \$264,188.91, with accrued interest of \$413,979.27. The difference between this and \$415,157.26 was for personal claims. The bill passed to the House, June 13, the Senate June 14, and was properly approved by Pres. McKinley. The money was paid to the British ambassador June 16. In 1898 there was established an international commission to settle all questions at issue between the United States and Canada, including the North American fishing question.

## SEALING-WAX—SEAMEN.

**SEAL'ING-WAX:** composition of hard resinous materials used for receiving and retaining the impressions of seals. Common bees-wax was first used in Europe generally, being mixed with earthy materials to give it consistency; but its preservation was difficult, as a very little heat softened it. The Venetians brought the Indian sealing-wax to Europe, and the Spaniards received it from the Venetians and made it an important article of commerce. The Indian wax was made only of shell-lac, colored with vermillion or some other pigment; and this has held its place as superior to all other materials. In the European manufacture there is added a portion of Venetian turpentine (see TURPENTINE) and of resin.

**SEAL ISLANDS, or LOBOS ISLANDS, *lō'bōs*:** see PERU.

**SEALKOTE, *sē-ál-kōt'*, or SIALKOT:** town in the Punjab, cap. of the dist. of S.; near the left bank of the Chenab, 65 m. n.n.e. from Lahore. It has manufactories of paper; and is a handsome and well-built city. Pop. (1881) 39,613; (1891) 54,930; (1901) 57,956.

**SEAL OF CONFESSION:** see CONFESSION, in THEOLOGY: CONFIDENTIALITY.

**SEAM, n. *sēm*** [Icel. *saumr*; Dan. and Sw. *sōm*, a sewing, a seam: Dut. *zoom*, a hem: Ger. *saum*, a hem or seam]: the uniting or joining together of two pieces of cloth by sewing or stitching them with thread; the line where this junction is made; the line or space between planks when placed or fastened together; a scar; a vein or stratum of an ore, or of coal, etc.; in geol., a thin layer between thicker strata: V. to unite by sewing with thread; to scar. **SEAM'ING**, imp. **SEAMED**, pp. *sēmd*. **SEAM'LESS**, a. -*lēs*, woven throughout, and nowhere united by a seam. **SEAM'STRESS**, n. -*strēs*, a woman whose occupation is sewing; but the common spelling is now **SEMPSTRESS**, which see. **SEAMY**, a. *sēm'ī*, having a seam; showing the seam.

**SEAM, n. *sēm*** [AS. *seam*; Ger. *saum*, a load or burden: OF. *somme*, a load—from mid. L. *alma*; L. *sagma*, a pack—from Gr. *sagma*, a pack-saddle]: a measure or quantity; a *seam* of grain, 8 bushels; a *seam* of glass, 120 pounds.

**SEAM, n. *sēm*** [F. *sain*, the fat or grease of a hog—from L. *sagina*, fatness produced by feeding: Sp. *sain*; It. *saime*, grease or fat]: in OE., tallow; grease; fat.

**SEAMAN, SEAMANSHIP:** see under SEA.

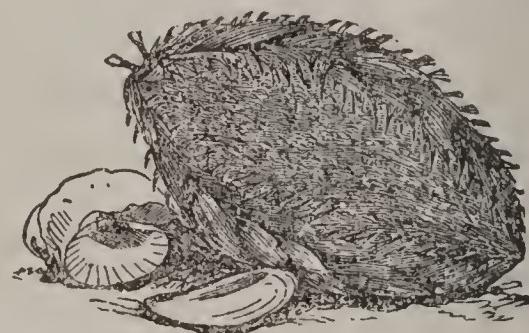
**SEA'MEN:** technically, persons below the rank of officer, employed in navigating decked vessels on the high seas—men working on lakes and rivers being usually styled ‘watermen.’ Two opposite conditions are essential to the well-being of the vessel—first, the absolute subordination and perfect obedience of the crew to the master; secondly, their protection against tyranny or caprice on his part. For this purpose the law of modern civilized states is minute in the rules for both masters and seamen.

The U. S. statutes require that the master of a vessel and his seamen shall sign ‘shipping articles’ setting forth the voyage or voyages and the period of time for which the

## SEA-MOUSE—SEANNACHIE.

mariners are engaged. A penalty is imposed when seamen are shipped without such articles. The seaman must perform the voyage, and cannot elect to pay damages for non-performance. He must not quit the ship without leave, and for every absence of 48 hours or less forfeits 3 days' pay: when absent for more than 48 hours without leave, he forfeits all wages due him and whatever goods he may have on the ship; and may be imprisoned till the ship is ready to sail. On board, he may be imprisoned for disobedience, insolence, etc. A seaman left destitute in a foreign port, on application to an American consul, must be sent back to the United States at public cost.—See NAVIGATION LAWS.

SEA'-MOUSE (*Aphrodite*): genus of dorsibranchiate annelida, of family *Aphroditidæ*, to all of which the popular



Sea-mouse (*Aphrodite aculeata*).

name is extended. They are readily distinguished by two longitudinal ranges of broad membranous scales covering the back, under which are the gills in the form of little fleshy crests. The scales move up and down as the animal respires; and are concealed by a substance resembling tow or felt, which permits access of water but excludes mud and sand. The head is furnished with tentacles; some have two eyes and some four. The body is edged with spines. Besides all this, its sides are covered with flexible bristles or silky hairs, which give to these creatures a wonderful beauty of color, unsurpassed by that of humming-birds or the most brilliant gems. Each hair, even when viewed singly, and moved about in the sunshine, reflects all the hues of the rainbow. Yet sea-mice are usually concealed under stones, and dwell among the mud at the bottom of the sea. Storms frequently throw them on the beach in great numbers. The Common S.-M. is a very beautiful species, *A. aculeata*, of oval form, 6 or 8 inches long, and 2 or 3 broad.

SEAN, n. *sēn*, a net: see SEINE.

SÉANCE, n. *sā-āngs'* [F. *séance*, a seat, sitting—from L. *sedens* or *sedēn'tem*, sitting; *sedērē*, to sit]: session, as of some public body; a sitting of any kind for consideration or inquiry; select scientific meeting; a spiritualistic meeting.

SEANNACHIE, or SENNACHIE, n. *sēn'ā-chē* [Gael. *seannachaidh*, a bard—from *sean*, old]: in Scot., a Highland bard or a genealogist.

## SEA-PIKE—SEARCH.

SEA-PIKE (*Centropomus undecimalis*): fish which, notwithstanding its popular name, belongs to the perch family: its form, however, is elongated like the pike. The body is compressed; there are two dorsal fins; the mouth is not very large; and the teeth are numerous, small, and equal. The color is silvery-white, tinged with green on the back. It is found on the w. coasts of tropical America. It attains a large size, and is a valuable fish.—On the British coasts, the name S.-P. is sometimes given to the Garfish.

SEAR, or SERE, a. *sēr* [Dut. *zoor*; Dan. *saare*; Low Ger. *soor*, dry: AS. *seárian*, to dry up: Gael. *searg*, to dry, to wither]: no longer green; dry; withered—applied to leaves. SEAR, v. to burn to dryness and hardness at the surface; to cauterize; to render callous or insensible; to brand. SEARING, imp. SEARED, pp. *sērd*: ADJ. burned on the surface; hardened. SEAREDNESS, n. *sēr'ēd-nēs*, the state of being seared. SEAR LEAVES, leaves withered or dead. SEAR WOOD, dead boughs. IN THE SEAR AND YELLOW LEAF ['the sear, the yellow leaf'—*Shakes.*]: that period of life when the body begins to decay. To SEAR UP, to close by searing or cauterizing.

SEARCE, n. *sērs*, or SARCE, n. *sārs* [F. *sasser*, to sift through a fine sieve: F. *sas*; OF. *séas*, a ranging sieve or searce—from L. *sēta*, a bristle, a horse-hair]: in *OE.* and provincial usage, a fine sieve; a bolter: V. to separate the fine part from the coarse, as of meal; to bolt; to sift. SEARC'ING, imp. SEARCED, pp. *sērst*: ADJ. sifted. SEAR'-CER, n. -*sér*, one who or that which bolts corn.

SEARCH, n. *sērch* [F. *chercher*; Norm. F. *sercher*; It. *cercare*, to search, to seek—from mid. L. *circārē*, to wander hither and thither—from L. *circus*; Gr. *kirkos*, a circle]: a seeking or looking, as for something lost or desired, or whose place is unknown; quest; pursuit; inquiry; examination: V. to seek for the purpose of finding; to look through; to try to find out; to make inquiry; to explore; to put to the test; to probe. SEARCH'ING, imp.: ADJ. minute and careful in the way of investigation; close; penetrating; keen: N. examination; inquisition. SEARCHED, pp. *sērcht*. SEARCH'ER, n. -*ér*, one who or that which searches; an inquirer. SEARCH'ABLE, a. -*ā-bl*, that may be searched or explored. SEARCH'ABLENESS, n. -*nēs*, state of being searchable. SEARCH'INGLY, ad. -*īng-lī*. SEARCH'-INGNESS, n. -*nēs*, the quality of being searching. SEARCH'-LESS, a. -*lēs*, that cannot be searched; inscrutable. To SEARCH OUT, to find by seeking; to seek till found. RIGHT OF SEARCH, in *international law*, the right of a belligerent in time of war to detain private merchant-ships of other nations which he meets on the high seas, to examine and search for enemy's property, or for articles contraband of war (see INTERNATIONAL LAW).—SYN. of 'search, n.': examination; scrutiny; inquiry; quest; exploration; investigation; research; pursuit; exploitation; inspection; trial; look,

## SEARCH OF INCUMBRANCES—SEARING.

**SEARCH OF INCUMBRANCES:** investigation made usually for an intending purchaser or mortgagee to ascertain the history of the fee, also what liens are in existence affecting a piece of real estate which it may be desired to purchase or mortgage. To ascertain the history of the fee, prior conveyances, mortgages, wills, and assignments for the benefit of creditors must be principally resorted to. This portion of the investigation is generally embodied by the examiner in a record by itself and termed an abstract of the title. The liens searched against are usually judgments, which latter are of two principal sorts—namely, state and federal unpaid taxes, and assessments for betterments and improvements; and liens imposed by mechanics, building and material men. So far as the fee is concerned, the time to which the search should go back depends largely on the locality and the chain of title, but usually it is safest to go back as far as existing records permit. So far as liens are concerned, the searcher ought to go back as far as the liens are given vitality by the statutes of the jurisdiction in which the search is being instituted. Searches are made usually by officers designated by law for the purpose, and when so made are known as ‘official.’ Within the last few years, however, corporations called ‘title companies’ have sprung up in various large cities, notably New York and Brooklyn, which also undertake the task of making searches, and supply them more cheaply and expeditiously than the county clerks, registers, and court officers to whom the work is by statute committed. In judicial proceedings, however, the ‘official’ search is the only one recognized by the courts as authoritative.

**SEARCH-WARRANT:** an authority granted to a constable by a justice of the peace to enter the premises of a person suspected of secreting stolen goods, in order to discover, and to seize the goods if found; and similar warrants are granted to discover property in respect of which other offenses are committed. Before such a warrant can be issued, a credible witness must on oath prove a reasonable cause to suspect that the party proceeded against has the property in his possession or in his premises. The name of the person whose premises are to be searched must be correctly described in the warrant.

**SEARING, sēr'ing, LAURA CATHERINE WALLER (REDDEN); ‘Howard Glyndon’:** author: b. Somerset co., Md., 1840, Feb. 9. When 10 years of age she became deaf, and afterward lost her power of speech. Her parents removed to Mo., and she was educated at the state institution for the deaf and dumb. She commenced writing 1860 for the St. Louis *Republican*, under the name Howard Glyndon, was war correspondent of that paper, studied the modern languages in Europe 1865-68, and was correspondent of the New York *Times*, and 1868-76 was connected with the New York *Mail*. She studied articulation under Alexander Graham Bell and others, and recovered the power of speech. She was married 1876 to Edward W. Searing, and removed to Cal. 1886. Among her works are *Idyls of Battle* (1864), and *Sounds from Secret Chambers* (1874.).

## SEARS.

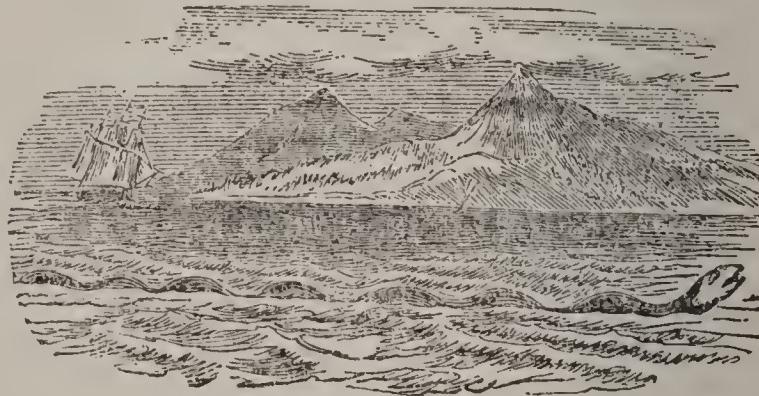
SEARS, *sērz*, BARNAS, D.D., LL.D.: 1802, Nov. 19—1880, July 6; b. Sandisfield, Mass.: Bapt. minister, scholar, and pres. of Brown Univ. He graduated at Brown, and at Newton Theol. Seminary; was a Bapt. pastor in Hartford, and prof. in the literary and theolog. institution at Hamilton, N. Y., and later in the Newton (Mass.) Seminary. During an interval of study abroad, he founded Bapt. missions in Germany. In 1848 he became sec. and agent of the Mass. board of education; in 1855 pres. of Brown Univ., resigning 1867 to be gen. agent of the Peabody educational fund, which office he held till his death at Saratoga Springs. His honorary titles, received from Yale and Harvard, were deserved testimonials to his high scholarship and efficient services. For some years he was editor of and contributor to the *Christian Review*. He published an improved ed. of Nohiden's Ger. grammar 1842; contributed to *Essays on Classical Literature* (1843); and among his writings are *The Ciceronian, or Prussian Mode of Instruction in Latin* (1844); *Life of Luther* (1850); *Discourse at the Centennial Celebration of Brown University* (1864). He published also *Select Treatises of Martin Luther*, in the original German, and a revised edition of Roget's *Thesaurus of English Words*.

SEARS, EDMUND HAMILTON, D.D.: 1810–1876, Jan. 14; b. Sandisfield, Mass.: pastor and author. He graduated at Union Coll. 1834, and Harvard Divinity School 1837; was Unitarian pastor at Wayland, Mass., 1839–40, and Lancaster, Mass., 1840–47; edited the *Monthly Religious Mag.*, 1847–65; and was pastor at Weston, Mass., 1865, till his death in that place. He received the degree D.D. from Union Coll. 1871. His books had wide circulation among those who appreciate graceful diction, refined thought, and spiritual elevation of feeling, especially *Athanasia* (1860), a Christian contemplation of death; and *Foregleams of Immortality*. Other works were *Regeneration* (1853); *Pictures of the Olden Time* (1857); *Christian Lyrics* (1860); *The Fourth Gospel the Heart of Christ* (1872); and *Sermons and Songs of the Christian Life* (1875).

SEARS, ISAAC: 1729–1786, Oct. 28; b. Norwalk, Conn. He was engaged for three years privateering against the French; but his vessel being wrecked 1761, he settled in New York and engaged in trade with the W. I. and Europe. He strongly opposed the Stamp Act, became one of the leaders of the Sons of Liberty, led the force 1775 which sacked the office and destroyed the presses of the *Royal Gazette* in New York, actively supported the patriot cause during the revolution, and was a member of the N. Y. assembly and of the provincial congress 1783. He lost his fortune during the war, engaged as supercargo on a merchant vessel 1785, and on his first voyage died at Canton, China.

## SEA-SERPENT.

SEA-SERPENT: name given to gigantic animals, presumably of serpentine form, believed by many naturalists to exist in the sea-depths, especially in tropical oceans. The question of the existence of sea-serpents has long formed one of the problems of zoological science. But there is certainly a reasonable basis for the supposition that undescribed marine forms exist in the sea-depths, and that they occasionally appear on the surface. The account of Capt. M'Quhae, published 1848, is well known. He commanded H.M.S. *Dædalus*, and encountered the serpentine form in lat.  $24^{\circ} 44'$  s., long.  $9^{\circ} 20'$  e., therefore in the s. Atlantic Ocean, near the Tropic of Capricorn, not very far from the coast of Africa. Capt. M'Quhae, in his Report to the Admiralty, describes it with confidence as 'an enormous serpent, with head and shoulders kept about 4 ft. constantly above the surface of the sea;' and he adds: 'As nearly as we could approximate by comparing it with the length of what our maintopsail-yard would show in the water, there was at the very least 60 ft. of the animal à fleur d'eau, no portion of which was, to our perception, used in propelling it through the water, either by vertical or horizontal undulation. It passed rapidly, but so close



Sea serpent.

(From Pontopiddan.)

under our lee-quarter that had it been a man of my acquaintance, I should have easily recognized his features with the naked eye; and it did not, either in approaching the ship or after it had passed our wake, deviate in the slightest degree from its course to the s.w., which it held on at the pace of from 12 to 15 m. per hour, apparently on some determined purpose. The diameter of the serpent was about 15 or 16 inches behind the head, which was, without any doubt, that of a snake; and it was never, during the twenty minutes that it continued in sight of our glasses, once below the surface of the water; its color a dark-brown, with yellowish-white about the throat. It had no fins, but something like the mane of a horse, or rather a bunch of sea-weed, washed about its back.' Regret has been expressed that Capt. M'Quhae did not bestow a shot on it. Figures prepared from a sketch by him were published in the *Illustrated London News* 1848, Oct. 28. About the same time, the testimony of another witness, Lieut. Drueimond, appeared, and was found to

## SEA-SERPENT.

differ in some important points from the account by Capt. M'Quhae, and the figures published with his approbation; particularly in ascribing a more elongated form to the head, in the mention of a back-fin, whereas Capt. M'Quhae expressly says that no fins were seen, and in a lower estimate of the length of the portion of the animal visible. Lieut. Drummond's words are: 'The appearance of its head, which, with the back-fin, was the only portion of the animal visible, was long, pointed, and flattened at the top, perhaps 10 ft. in length; the upper jaw projecting considerably; the fin was, perhaps, 20 ft. in the rear of the head, and visible occasionally; the captain also asserted that he saw the tail, or another fin about the same distance behind it; the upper part of the head and shoulders appeared of a dark brown color, and beneath the under jaw a brownish-white. It pursued a steady and undeviating course, keeping its head horizontal with the water, and in rather a raised position, disappearing occasionally beneath a wave for a very brief interval, and not apparently for the purposes of respiration. It was going at the rate of perhaps from 12 to 14 m. an hour, and when nearest was perhaps 100 yards distant. In fact, it gave one quite the idea of a large snake or eel.' Lieut. Drummond's account is the more worthy of regard as it is derived from his log-book.

In 1875 a battle between a sea-serpent and a whale was viewed from the deck of the ship *Pauline* of London. Capt. Drevar, when proceeding with a cargo of coals from Shields to Zanzibar, destined for her majesty's ship *London*. When the *Pauline* reached the region of the trade-winds and equatorial currents, she was carried out of her course, and after a severe storm found herself off Cape Roque, where several sperm-whales were seen playing about her. While the crew were watching them, they suddenly beheld a sight that filled every man on board with terror. Starting straight from the bosom of the deep, a gigantic serpent, with a diameter at its largest part 8 or 9 ft., rose and wound itself twice round the largest of the whales, which it proceeded to crush in genuine boa-constrictor fashion, in spite of a frantic struggle by the whale. The ribs of the ill-fated fish were distinctly heard cracking one after the other. Five days later they saw a serpent 200 ft. in length in full career.

Of no less a ship than her majesty's yacht the *Osborne*, the captain and officers, 1877, June, forwarded an official report to the admiralty containing an account of a sea-serpent's appearance off the coast of Sicily June 2: 'The time was five o'clock in the afternoon. The sea was exceptionally smooth, and the officers were provided with good telescopes. The monster had a smooth skin, devoid of scales, a bullet-shaped head, and a face like an alligator. It was of immense length, and along the back was a ridge of fins about fifteen ft. in length and six ft. apart. It moved slowly, and was seen by all the ship's officers.'

This account was supplemented by a sketch from the pencil of Lieut. W. P. Hynes of the *Osborne*, who to the

## SEA-SERPENT.

above description adds that the fins were of irregular height, and about 40 ft. in extent, and 'as we were passing through the water at ten and a half knots, I could only get a view of it "end on." It was about 15 or 20 ft. broad at the shoulders, with flappers or fins that seemed to have a semi-revolving motion. From the top of the head to the part of the back where it became immersed, I should consider about 50 ft., and that seemed about a third of the whole length. All this part was smooth, resembling a seal.'

The capt. and surgeon of the steamship *Nestor* made affidavit to seeing, in smooth sea near Malacca, a creature like a salamander, head 20 ft., body 45–50, vertically undulating tail 150 ft.; transversely striped black and yellow. It followed the ship. Such are some of the testimonies; and many are said to be withheld for fear of ridicule. The most positive and noteworthy, on this coast, is that of Granville B. Putnam, a well-known Boston teacher, son-in-law of the late Pres. Hitchcock of Amherst College. 1886, Aug. 12, at 1 P.M., looking about  $\frac{1}{2}$  of a mile off shore at Pigeon Cove, Cape Ann, Mass., the sea still and smooth, he and Calvin W. Pool, town-clerk and surveyor (both with small telescopes, and standing at an elevation of 50 ft. above the shore, with about 50 people attracted to the sight), saw a serpent-like monster, estimated to be 100 ft. long, moving northward, obliquely to the outgoing tide, at the rate of 4 or 5 m. an hour, with sinuous vertical movement—the head and 15 ft. of neck fully visible except as obscured by thrown-up foam, and followed by a dozen ridges of undulation each 6 or 7 ft. apart. The size of the head was compared to a 10-gallon keg, and that of the body to a flour-barrel. Watched till a half-mile away, the creature rested at full length a moment, and sank out of sight. Mr. Putnam says the appearance was quite unlike that of porpoises, with which he is familiar.

The chief point at issue is that of the zoological determination of the forms reported to have been seen. Gigantic cuttle-fishes, now proved to have a veritable existence, might in many cases imitate an elongated marine form, swimming near the surface of the sea. Certain fishes, such as the Basking Shark (*Selache maxima*), would also under certain circumstances appear as unusual marine forms; and as Dr. Andrew Wilson, of the Edinburgh Medical School, has pointed out, the well-known Tape-fishes (*Gymnetrus Banksii*) would very accurately reproduce the features of a marine snake, especially when these fishes, as is well known, are developed to immense size. The marine snakes or *Hydrophidæ* of the Indian Ocean would also serve to personate the 'great unknown,' if largely developed. Flocks of shags swimming close to the water's edge might resemble a sea-serpent swimming along the top of the water (see *Nature*, 1878, Sep.); but a flock of birds would have been readily detected by Capt. M'Quhae, by Mr. Putnam, and by many other observers. For the scientific aspects of this question, consult 'The Sea-Serpents of Science,' in Dr. Andrew Wilson's vol., *Leisure-Time Studies* (Chatto & Windus, London 1878).

## SEA-SHORE—SEA SICKNESS.

SEA'-SHORE, in Law: land on the border of the sea between high-water and low-water mark. In England an individual owner holds S. lands subject to the public rights of navigation and fishery. In the United States the several states regulate the use of their sea-shores at their discretion, except where the laws of congress interfere. In Mass. and Me., proprietors of adjoining lands on bays or arms of the sea own down to low-water mark, subject to the public right of fishery and navigation.

SEA'-SICKNESS: nausea accompanied by retching and vomiting, experienced on a vessel at sea, or as result of a similar motion. Its premonitory symptoms often appear almost immediately after a susceptible person is exposed to the motion of a vessel or boat, and are as distressing as the vomiting itself—e.g., vertigo and headache, with a peculiar sinking and distress about the pit of the stomach. Vomiting usually soon comes on, with convulsive heaving of the stomach, and such indescribable prostration as often to render the patient utterly regardless of what is going on around him, and indifferent to life. Moreover, deadly pallor, profuse cold sweat, and diarrhea, are more or less commonly present. The susceptibility to this affection varies extremely in different persons. Some never suffer from it, others only on their first voyage, and others, again, in every voyage; with some it continues but a few hours, while others suffer almost continuously throughout a long voyage. In the great majority of cases, the sickness disappears in a few days, unless the weather be very boisterous. It almost always ceases on landing, though some giddiness may remain for hours, the patient when walking feeling as if the earth were rising up under his feet. Infants and aged persons are supposed to possess comparative immunity from sea-sickness: as a general rule, women suffer more than men. According to Dr. Althaus, persons with a strong heart and slow pulse generally suffer little from S. S.; while irritable people, with quick pulse and tendency to palpitation, are more liable to it; and he thus accounts for different liability of different nations to this affection; ‘for, as a rule, the French and Italians, being of a more irritable temper, suffer most from the disorder, the Germans less, and the English least.’ (*‘On Sea-sickness as a Form of Hyperesthesia,’ Proceedings of the Medico-Chirurgical Soc.,* V. 23.)

The primary cause (or rather condition) of S.-S. is the motion of the ship; and the *pitching* of a vessel, or alternate rising and falling of the bow and stern, is especially apt to produce it. It is less felt in large and heavily ballasted vessels, because the movements referred to are least perceptible in them. How this cause operates is a subject which has been and is much discussed; though Dr. Chapman’s theory (see his work *On Sea-sickness; its Nature and Treatment*—Lond. 1864) has been widely accepted. He holds that the motions of the vessel cause accumulation of an undue amount of ‘blood in the nervous centres along the back, and especially in those segments of the spinal cord related to the stomach, and the muscles concerned in

## SEASIDE GRAPE.

vomiting.' This condition is induced, as he maintains, in three different ways—viz., (1) by the movements of the brain, which are much greater in a pitching vessel than on land; (2) by the corresponding movements of the spinal cord; and (3) by the excessive movements of the viscera within the abdominal and pelvic cavities. In one person the brain may be the main agent in the afflux of blood in the spinal cord; in another, the spinal cord may be the main agent; in a third, the abdominal viscera; though each is always concurrent in some degree. Hence the remedy must lessen the amount of blood in the whole of the nervous centres along the back, by lowering the temperature of the spinal region by local application of ice, e.g., in 'spinal ice-bags.' Mr. Bradley, surgeon to the Cunard Service, in a letter to *The Lancet*, 1864, Dec. 3, writes: 'I have tried this remedy in severe cases when other remedies have failed (chloroform, iced champagne, effervescing draughts, fresh air, etc.), and have very generally found it do great good. In no case does it do harm, but in the great majority of instances it soothes the nervous irritability which so commonly accompanies severe sea-sickness, induces sleep, and consequently relieves exhaustion.' An ancillary remedy is the drinking of iced water, or the swallowing of small lumps of ice: Dr. Chapman prefers the ice, which, 'brought in contact with the peripheral ends of the nerves of the stomach, will act on the same principle as it does when applied to the spinal region.'

Those who are susceptible to S.-S. may at least diminish the severity of the vomiting by assuming, and retaining, the horizontal position, as nearly as possible in the centre of the ship's movement, and keeping the eyes closed. The compression of the abdomen, by means of a broad tight belt, sometimes gives relief. A few drops of chloroform on a lump of white sugar will sometimes check the tendency to vomiting in persons who suffer only slightly. A little arrowroot, flavored with brandy or sherry, is usually a kind of food that will most easily remain on the stomach, when the severity of the symptoms is abating. Dr. Wood, eminent American physician, asserts that he has 'found nothing under such circumstances so acceptable to the stomach as raw salt oysters.'

SEA'SIDE GRAPE (*Coccoloba uvifera*): a small sea-coast tree, of nat. order *Polygoneæ*, native of the W. Indies. It has orbicular, cordate, leathery, shining, entire leaves, and a pleasant, subacid, eatable fruit, somewhat like a currant, formed of the pulpy calyx investing a bony nut. The extract of the wood is extremely astringent, and is sometimes called JAMAICA KINO. The wood itself is heavy, hard, durable, and beautifully veined.

**SEASON**, n. *sē'zn* [F. *saison*, due time, fit opportunity: Sp. *sazon*, time of maturity; *sazonar*, to ripen, to bring to maturity—from L. *satiō* or *satiōnem*, a sowing; *satus*, sowed; *serērē*, to sow]: literally, the sowing-time; suitable or convenient time; any particular time, as distinguished from others; one of the four divisions of the year, spring, summer, autumn, winter; a period of time not very long; in *OE.*, that which gives a relish: V. to mature; to become mature; to prepare for use; to inure; to render palatable; to temper; to qualify by admixture; to imbue; to become fit for its proper use; to dry thoroughly, as timber; in *OE.*, to savor. **SEA'SONING**, imp. *-zn-ing*: N. anything added to impart relish. **SEA'SONED**, pp. *-znd*: ADJ. dried and hardened; matured; rendered strong; flavored with condiments or spices, as food. **SEA'SONLESS**, a. *-zn-lēs*, without the succession of the seasons. **SEA'SONABLE**, a. *-ā-bl*, happening in due season; done at the proper time; timely. **SEA'SONABLY**, ad. *-blī*. **SEA'SONABLENESS**, n. *-bl-nēs*, the quality or condition of being seasonable. **SEA'SONAL**, a. *-zn-āl*, pertaining to the seasons. **IN SEASON**, at the right time; sufficiently early. **OUT OF SEASON**, too late; beyond the proper time. **SEASON TICKET**, a ticket or pass for travelling on a railway at pleasure, to a certain station, and for an extended period; a ticket of admission to a place of public amusement for an extended period.—**SYN.** of ‘seasonable’: timely; fit; opportune; convenient.

**SEA'SONS**: main divisions of the year. For the motions of the earth on which the changes of the seasons ultimately depend, see **EARTH**. The chief cause of the greater heat of summer and cold of winter is that the rays of the sun fall more obliquely on the earth in winter than in summer: see **CLIMATE**. A concurrent cause is the greater length of the day in summer, and of the night in winter. Within the tropics, the sun’s rays have at no time so much obliquity as to make one part of the year very sensibly colder than another: there are therefore either no marked seasons, or they have other causes altogether, and are distinguished as the *Wet* and *Dry* seasons: see **RAIN**. But in all temperate parts of the globe, the year is naturally divided into four seasons—*Spring*, *Summer*, *Autumn*, and *Winter*. In the arctic and antarctic regions, spring and autumn are very brief, and the natural division of the year is simply into summer and winter, the winter being long, and the summer short: it is largely thus also in parts of the temperate zones near the arctic and antarctic circles. In sub-tropical regions the distinction of four seasons is, in like manner, very imperfectly marked. This distinction is everywhere arbitrary as to the periods of the year included in each season, which really vary according to latitude, and partly according to the other causes which influence climate; the seasons passing one into another more or less gradually, and their commencement and close not being determined by precise astronomical or other phenomena. The greatest heat of summer is never reached till a considerable time after the summer solstice, when the sun’s rays are most nearly vertical, and the day is longest; the greatest cold of

## SEAT—SEATON.

winter is in like manner after the winter solstice, when the day is shortest, and the sun's rays are most oblique; the reason in the former case being, that, as summer advances, the earth itself becomes more heated by the continued action of the sun's rays; in the latter, that it retains a portion of the heat which it has imbibed during the summer, just as the warmest part of the day is somewhat after mid-day, and the coldest part of the night is toward morning. The four seasons of temperate regions are distinguished by the phenomena of nature which characterize them, and which are of the greatest importance in relation to the wants and labors of man. But the renewal of vegetative activity in spring is not to be ascribed entirely to the increasing warmth of the sun's rays. Plants are so constituted that a period of rest is followed by new activity, and this new activity very generally begins in the fresh circulation of sap and enlargement of buds while the cold of winter continues unabated, or before it has reached its greatest intensity. A similar remark may be made with regard to some of the phenomena of animal life, which may as well be said to herald the approach of spring as to attend its first days of genial weather.

**SEAT**, n. *sēt* [Icel. *sæti*; Sw. *säte*, a seat: AS. *settan*; Ger. *setzen*; Icel. *setia*, to place, to let down: Ger. *sitzen*; L. *sedērē*, to sit]: that on which one sits, as a chair, a bench, or a stool; a sitting; right of sitting; a place in parliament; a post of authority; station; situation or position; site; a residence; a mansion; the manner of sitting a horse: V. to cause to sit down; to lie down; to place in a seat; to settle; to fix; to fit up with seats; to assign seats to. **SEAT'ING**, imp.: ADJ. the act of giving a seat: N. the material for making seats. **SEAT'ED**, pp. placed in a chair or on a bench; settled. **SEAT'LESS**, a. -*lēs*, without a seat.

**SEATON**, *sē'ton*, WILLIAM WINSTON: 1785, Jan. 11—1866, June 16; b. King William co., Va. He studied under private tutors, took great interest in political affairs, and at the age of 18 joined the editorial staff of a Richmond newspaper. For a short time he edited a paper at Petersburg, then became proprietor of the *North Carolina Journal*, at Halifax, and on the removal of the state cap. to Raleigh became one of the editors of the *Register*, published in that city. In company with a brother-in-law, Joseph Gales, Jr., he took charge of the *National Intelligencer*, at Washington, 1812. The two conducted the paper till the death of Mr. Gales 1860, when S. became sole editor, a position which he retained until the sale of the paper a little before his death. In company with Gales he published *Annals of Congress* (42 vols.); *Register of Debates in Congress* (14 vols.); and various other documents. He was a regent of the Smithsonian Institution, and was mayor of the city of Washington 1840–52. He died at Washington.

## SEATTLE—SEAWORTHY.

SEATTLE, *sē-ăt'tl*: city, cap. of Kings co., Wash.; on Elliott and Salmon bays, Pacific Ocean, and on the Columbia and Puget Sound, the Northern Pacific, Seattle and International, and the Great Northern railroads. It occupies a peninsula bounded w. by Elliott Bay; n. by Salmon Bay, Lake Union, the Ocean canal; (1902) building, to connect Seattle har. and Lake Washington, where U. S. engi. propose to locate a naval station, and ship yards for n. Pacific district, and s. by Black river, which with the Dquamish river, forms the outlet of Lake Washington into Puget Sound. The city thus commands important lines of ocean and inland navigation, besides an unlimited and convenient water-supply. Its harbor is one of the largest, safest, and best on the Pacific coast, and is connected with Tacoma and all ports on Puget Sound by railroad and steamboat, as well as with all Pacific-coast and foreign ports by regular lines of steamships, 250 vessels being registered at S. as a port of entry. Within a radius of 36 m. are 60,000 acres of rich coal-fields; mountains of hematite iron ore; and valleys especially productive in grain, hay, potatoes, vegetables, fruit, and hops. The city was named from an Indian chief, was occupied by white men first in 1852, was an isolated trading-post more than 20 years, began its career of prosperity 1873, and had a fire 1889, June 6, which occasioned a loss of nearly \$20,000,000, the business part being almost entirely destroyed. There were (1902) 6 national banks (cap. \$980,000); 4 st. banks (cap. \$500,000); 6 priv. banks; branch of Bank of Brit. Columbia; 3 building and loan asso.; more than 90 m. of cable and electric street railroads; 65 churches; 50 fraternal lodges and benevolent associations; 18 public-school houses; State Univ., founded 1861, with grounds, buildings, and scientific apparatus valued at \$700,000; Rom. Cath. acad.; 2 hospitals; gas and 3 elec. light plants; 2 theatres and several large public halls; paid fire dept., with harbor fire-boat (cost \$40,000); water-works sys. (cost \$1,000,000), 120 hotels, besides more than 100 restaurants; and 5 daily, 11 weekly, and 14 mon. periodicals. The choicest residences, some of which cost \$75,000, and more, apiece, rise on terrace after terrace till they reach the summit of the heights, then give way to beautiful country-seats that fringe Lake Washington, 25 m. long and 5 m. wide. The manufacturing inter. comprise 14 saw-mills, 36 fish-canning wks., 12 ship-yards, dry-docks, iron and brass foundries, machine-shops, tanneries, breweries, artificial-ice factories, and numerous minor works. In 1902 the debt was \$3,717,493; real property valuation \$42,477,618; personal \$9,191,035; tax-rate \$3.11 on \$100; the principal shipments; coal, lumber, piles, spars, shingles, lath, hops, salmon, hay, grain, hides, wool, furs, vegetables, fruit, bear, deer, grouse, ducks, and a large variety of fresh and salt-water fish. Pop. (1890) 42,837; (1900) 80,671.

SEAWORTHY: see under SEA.

## SEBACEOUS—SEBASTIANO DEL PIOMBO.

SEBACEOUS, a. *sē-bā'shūs* [L. *sēbācēus*, a tallow-candie from *sēbum*, tallow or suet]: made of tallow; fatty; containing or secreting fatty matter; pertaining to fat. SEBACIC, a. *sē-būs'ik*, derived from fat or oil, as *sebacic acid*, an acid derived from olein; pertaining to fat. SEBATE, n. *sē'bāt*, a salt of sebacic acid.

SEBAS'TE: see SAMARIA.

SEBASTIAN', SAINT: see SAN SEBASTIAN.

SEBASTIANI, *sā-bás-tē-á-nē* or *-nē'*, FRANÇOIS-HORACE-BASTION: marshal of France: 1772, Nov. 10—1851, July 20; b. Porta d'Ampugnano, village near Bastia, in Corsica. His father was a tailor; but his vanity led him to declare himself of noble descent and a distant relative of the Bonapartes. He entered the army as sub-lieut. of infantry 1789. His rise, due to bravery in the field, was doubtless aided by his splendid physique and graceful manner. He became *chef-d'escadron* 1797, brigadier 1799, and was one of Napoleon's devoted partizans. He became gen. of brigade 1803, and was wounded at Austerlitz. In 1806 he was deputed to Turkey, to break the alliance of the Porte with Russia and England: his tremendous energy inspired the sultan's terrified ministers, and in an incredibly short time he put the batteries defending the approach to Constantinople in readiness for action. The English fleet, however, at last gallantly ran the gantlet, losing two ships and 700 men. But the death of the sultan, and the treaty of Tilsit, ended French intrigues in Turkey, and S. was recalled 1807. On the exile of Napoleon to Elba, he gave in his adherence to the Bourbon govt., but joined his old master on his return. After the revolution of 1830, he held official and diplomatic positions. S. died at Paris.

SEBASTIANISTAS, *sā-bás-tē-á-nís'tas*: in Portugal and Brazil, persons who believe in the future return to earth of the king Dom Sebastian (1554–78), who fell in the battle of Alcazarquebir 1578, while leading his army against the Moors. It is said that some S. still remain in Brazil. Several impostors, claiming to be Dom Sebastian, have appeared from time to time.

SEBASTIANO DEL PIOMBO, *sā-bás-tē-á-no dēl pēom'bo*: 1485–1547; b. Venice: painter. First a noted musician, he became a pupil of Giovanni Bellini and Giorgione. He was known first by his painting of Chrysostom reading at a desk, with accessory figures. About 1512 he went to Rome by invitation of Agostino Chigi, whose house he adorned with frescoes. Michael Angelo admired his work; and, it is asserted by some, questioned by others, drew the figures of many subsequent pictures of Sebastiano, who supplied the rich Venetian coloring in which Michael Angelo's work was lacking. Four paintings referred to this co-working are the *Pietà*, in the Church of the Conventuali, Viterbo; a *Transfiguration*, and the *Flagellation*, in the Church of S. Pietro, Rome; and the celebrated *Raising of Lazarus*, in the Brit. National Gallery. When Giulio de' Medici became pope, S. received the office of Piombo [It., lead, referring to a leaden seal], and, sat-

## SEBASTOPOL.

isfied with this mark of supremacy in art, he led an idle life. Of the few works that he subsequently executed, are two painted on stone according to his own invention—*Christ Carrying the Cross*, and a *Madonna with the Body of Christ*, in the Berlin Gallery. In the same gallery is a *Dead Christ Supported by Joseph of Arimathea*. His many portraits are famous, and include popes and noblemen; e.g., Andrea Doria, in the Doria palace, especially fine. In the Brit. Gallery is one of himself with Cardinal Ippolito de' Medici, and another of a lady in the character of St. Agatha.

SEBASTOPOL, *sēb-as-tō'pol*, Rus. *sā-bās-tō'pōl*, or, according to modern Greek pronunciation, SEVASTOPOL, *sēv-* (*Sebastopolis*, the ‘august city’): Russian seaport, fortress, and arsenal in the Crimea, govt. of Taurida. It is near the s.w. extremity of the Crimea, on the s. side of the magnificent harbor or roadstead of S., one of the finest natural harbors in the world—an inlet of the Black Sea, stretching inland about four and a half miles from w. to e., about half a mile wide at the entrance, but immediately opening to the width of a mile, with average width about half a mile to the e. end. It is sheltered on the n. and s. by lofty limestone ridges shutting it completely in, with depth varying from 3 to 11 fathoms, and sufficient in several places to allow ships of the largest size to lie close to the shore. At the e. end, under the heights of Inkermann, the river Tchernaya enters the harbor through low marshy ground. The South Bay or Dockyard Harbor, extending about one and a half miles from n. to s., forms the harbor proper; and between it and Quarantine Bay, occupying rather more than half the peninsula thus formed, is the chief portion of the town of S., on ground sloping irregularly upward. The town, previous to its destruction in the siege of 1854–5, was substantially built of stone, containing several handsome public edifices: the pop., including garrison, was 43,000. The docks, constructed for the Russian govt. by an Eng. civil engineer, were among the most important works at S.; the dock basin, docks, and quays were of admirable design and construction. For defense of town and harbor from attack by sea, several forts of immense strength were built, of limestone faced with granite, on which the artillery in use at the time of the Crimean war was found to make little impression; they mounted a very large number of guns, and by their cross-fire completely protected every spot accessible to a hostile fleet. On the land side, the town, previous to the siege, was nearly undefended; but the earthworks and fortifications then successively extemporized by the genius of Gen. Todleben, of which the Malakoff and the Redan were the most formidable, for many months kept the armies of France and England at bay.

The siege of S. by the allied English and French armies ranks among the famous sieges in history; it lasted 11 months, 1854, Oct.—1855, Sep.; the place sustained repeated bombardments; and the capture of the Malakoff and Redan, 1855, Sep. 8, at length forced the Russians to

## SEBENICO—SECALE.

evacuate it, and retire to the n. side. The town was completely ruined; the docks and forts still standing were blown up by French and English engineers, and by the treaty of Paris (1856) were not to be restored; but the restrictions were removed by the abrogation of the neutrality of the Black Sea by the Conference of London (1871). The town has been partially rebuilt. S. was intended to be the station of the Russian Black Sea fleet, and as such to form a standing menace to Turkey; during the siege, that fleet was almost entirely destroyed; many of the ships having been sunk by the Russians across the entrance of the harbor by way of defense. S. as a naval station is at disadvantage from the ravages of the *Teredo navalis*, which soon render wooden vessels unseaworthy.—S. was founded on the site of a small Tartar village called *Akhtiar*, immediately after the Russian conquest of the Crimea 1783, under the orders of Empress Catharine II. The promontory on which S. stands is a spot of classical and historical interest. Here, perhaps on the site now occupied by the Greek convent of St. George, w. of Balaclava, stood the temple of the Tauric Artemis, in which, according to the legend, Iphigenia, daughter of Agamemnon, was priestess. In later times, the promontory was colonized by Greeks from Heraclea, in Asia Minor, and became known as the Heracleotic Chersonese. Two cities, successively built a few miles apart on the sea-coast w. of S., have left remains visible at the present day. In after times, the Chersonesus fell into the power of the Genoese, who established their headquarters at Balaclava, where the remains of the 'Genoese castles' on the heights still bear witness to their rule. See Kinglake's *Invasion of the Crimea*.—Pop. (1890) 29,000; (1897) 50,710.

SEBENICO, *sā-bā'nē-kō*: small port on the Dalmatian coast of the Adriatic, 42 m. s.e. of Zara. It is on a steep slope, rising in terraces, and was formerly defended by walls and towers. Its cathedral, a fine edifice with a bold dome, was built 1443–1536. Its excellent harbor is defended by several forts. Pop. (1890) 7,014; commune, 20,360.

SEBESTEN, *sē-bēs'tēn* (or SEBES'TAN, -*tān*, or SEBESTEN PLUM) (the *Cordia Myxa*): tree of nat. order *Cordiaceæ*, native of the E. Indies: also its fruit. The tree has ovate leaves; and an egg-shaped fruit, succulent, mucilaginous, and emollient, with some astringency, and formerly an article of the European *Materia Medica*, being employed for the preparation of a lenitive electuary and of a pectoral medicine. It is believed to be the *Persea* of Dioscorides. It has a sweetish taste, and is eaten by natives of the Northern Circars of India, where it grows.

SEBIFEROUS, a. *sē-bif'ér-ūs* [L. *sēbum*, fat; *fero*, I produce]: producing vegetable wax.

SECALE, n. *sē-kā'lē* [L. *sēcālē*, a species of grain, rye]: rye; ergot of rye; a genus of cereal grasses to which rye belongs: see RYE: ERGOT.

## SECANT—SECESSION.

**SECANT**, a *sē'kānt* [L. *secans* or *secantem*, cutting—from *secārē*, to cut: It. and Sp. *secante*, a secant]: cutting; dividing into two parts: N. a line that cuts another; in *geom.*, a right line that divides another; a straight line cutting a curve in two or more points; in *trig.*, a right line drawn from the centre of a circle, which, cutting the circle, is produced till it meets another straight line, called a tangent, which merely touches the same circle; the *secant of an angle* in a right-angled triangle is the ratio of the hypotenuse to the side opposite to the specified angle (see TRIGONOMETRY). **SE'CANCY**, n. *-kān-sī*, a cutting or intersection.

**SECCHI**, *sēk'kē*, PIETRO ANGELO: born Reggio, Italy, 1818, July 29: d. 1878, Feb. 26: Italian astronomer. He was a teacher of physics in the Coll. of Loretto 1841–43; student of theol. at Rome, and Georgetown, D. C., 1844–49; director of the Roman Coll. (Rome) observatory since 1849, having reconstructed it; and invented a system and instrument (meteorograph) of weather observations, also a system of water-supply to Rome. He is widely known for his original researches in spectroscopic and other physics of astronomy. His Eng. publications include *Researches in Electric Rheometry* (Smithsonian contributions 1859), and *Spectrum Observations on the Rotation of the Sun* (London 1870); those in Italian, researches on solar phenomena and physics, including a stellar catalogue 1867; and, in French, on similar subjects, the most noteworthy *Le Soleil: Exposé des principales découvertes modernes*, etc. (1870), and a French translation of *Dell' unità delle forze fisiche* (1875).

**SECCO**, n. *sēk'ō* [It.—from L. *siccus*, dry]: in *paint.*, term applied to that kind of fresco-painting which absorbs the colors into the plaster and gives them a dry, sunken appearance.

**SECEDE**, v. *sē-sēd'* [L. *secedērē*, to go aside or apart, to separate—from *se*, aside; *cedo*, I yield, I retreat]: to separate one's self; to withdraw from fellowship or association. **SECE'DING**, imp.: ADJ. withdrawing from fellowship. **SECE'DED**, pp. **SECE'DER**, n. *-dēr*. one who secedes: in *Scot.*, member of a religious body which seceded from the Church of Scotland: see SECESSION.

**SECERN**, v. *sē-sērn'* [L. *secerno*, I sever or separate—from *se*, aside or apart; *cernērē*, to sift]: to distinguish; in *physiol.*, to secrete or separate in the animal body, as mucus. **SECERN'ING**, imp. **SECERNED'**, pp. *-sērn'd'*. **SECERN'ENTS**, n. plu. *-ēnts*, in *anat.*, those vessels whose function it is to deposit matters separated from the blood, for the reproduction of the several parts of the body. **SE'ERN'MENT**, n. *-mēnt*, the process or act of secreting.

**SECESSION**, n. *sē-sēsh'ūn* [L. *secessiō* or *secessiōnem*, a withdrawal; *secessus*, withdrawn—from *secedērē*, to go aside]: the act of withdrawing: in the *United States*, the withdrawal attempted by force of arms, of certain slaveholding states, from the American Union: in *Scot.*, the body of seceders from the Established Church about 1733 (for history of the Secession Kirk, see UNITED PRESBYTERIAN).

## SECESSION—SECLUSION.

CHURCH: also MARROW CONTROVERSY). SECES'SIONISM, n. -ün-izm, the principle of secession. SECES'SIONIST, n.-ist, one who defends secessionism.

SECES'SION, WAR OF; or WAR OF THE REBELLION, or CIVIL WAR IN THE UNITED STATES: see UNITED STATES.

SECKEL, n. sēk'l, or SICKLE, sīk'l [from having originated on a farm afterward owned by Mr. Seckel]: small pulpy variety of pear of delicious flavor. It ripens about the end of Oct., but keeps good only a few days.

SECKENDORF, sēk'en-dorf, VEIT LUDWIG VON: 1626, Dec. 20—1692, Dec. 18; b. Herzogenaurach, in Upper Franconia: German statesman and scholar. He was of ancient noble family; his father was an officer in the 30 years' war. Educated at Coburg, Mühlhausen, and Erfurt, on his return to Coburg 1639, Ernest the Pious, of Gotha, became his patron, and he studied history and jurisprudence in the Strasburg Univ., after which he had charge of his patron's library. After 1652 he filled important public positions—in 1656 judge of the ducal court at Jena, where he had part in the reforms of the duke. By the Elector Frederick of Brandenburg (afterward King Frederick I. of Prussia) he was appointed chancellor of the new Univ. of Halle. To him he had dedicated his standard work, *Deutscher Fürstenstaat*, a handbook of Ger. public law. Later he entered the service of Duke Maurice of Zeitz. He was interested especially in Spezner's pietistic reforms of the Ger. Church. In 1685 he published *Der Christenstaat*, defending Christianity and suggesting reforms. His chief work was *Commentarius Historicus et Apologeticus de Lutheranismo, sive de Reformatione* (3 vols. 1688–92), written to refute Mainbourg's *Histoire du Lutheranisme*. It is a store-house of information.

SECLUDE, v. sě klōd' [L. *seclūdērē*, to seclude—from *se*, aside; *clādo*, I shut]: to shut in a separate place; to separate or keep apart from company or society; to shut out. SECLU'DING, imp. SECLU'DED, pp.: ADJ. retired; living in retirement. SECLU'DEDLY, ad. -lī. SECLU'SION, n. -klō-shūn [L. *seclūsus*, secluded]: the act of separating from society; solitude; retirement; private or humble life. SECLU'SIVE, a. -sīv, that keeps separate or in retirement; that shuts out from society.

SECLU'SION OF THE INSANE: removal of the violent insane from the ordinary wards and fellowship of an asylum to a court, gallery, or room so situate and furnished that its solitary occupant can neither injure himself, nor injure nor disturb others. That S. should be resorted to only as a remedial agent, and in general for short periods, and by the medical attendant, are now received as axioms. See INSANITY: LUNATIC ASYLUM.—Consult Bucknill and Tuke, *Psychological Medicine*; D. Hack Tuke, *Chapters in the History of the Insane in the British Isles* (1880).

## SECOND.

SECOND, a. *sēk'ünd* [F. *second*, second—from L. *secundus*, the next after—from *sequi*, to follow: It. *secondo*]: the next in order to the first: other; next in value, power, excellence, rank, or relationship; inferior; following in the next place: N. one next to the first; one who accompanies another in a duel to direct or support him; a supporter: the 60th part of a minute of time or motion (see below): in *music*, interval between two succeeding sounds of a scale: V. to support or assist; to encourage; to promote. SEC'ONDING, imp.: N. special in *Brit. milit.*, temporary retirement of certain officers for acceptance of civil employment under the crown. SEC'ONDED, pp. SEC'ONDER, n. -ér, one who first supports a motion; a backer. SEC'ONDLY, ad. -lī, in the second place. SECONDO, n. *sē-kōn'dō* [It.]: in *music*, the second part. SECONDS, n. plu. *sēk'ündz*, an inferior and coarse flour remaining after the finest has been separated. SECOND ADVENT, or SECOND COMING, in *theol.*, the expected second coming of Christ: see SEVENTH-DAY ADVENTISTS. SECOND COUSIN, the son or daughter of a cousin. SECOND DISTANCE, that part of a picture between the foreground and background. SECOND-HAND, a. that has been used or worn; not new; not original or primary; dealing in old goods. AT SECOND HAND, ad. not primarily; not originally. SECOND-RATE, a. of the second size, rank, quality, or value: N. the second order in size, etc. SECOND SIGHT, supposed power of seeing things future or distant (see below). SECOND-SIGHTED, a. having the supposed power of seeing the future. SECONDARY, a. *sēk'ünd-ér-i*. coming after or succeeding the first; not of the first order or rate; not primary; subordinate: N. that which is secondary; a delegate or deputy. SEC'ONDARILY, ad. -i-lī. SEC'ONDARINESS, n. -i-nēs, the state of being secondary. SEC'ONDARIES, n. plu. -iz, the quills which rise from the forearm of the wing of a bird. SECONDARY CIRCLES, or SEC'ONDARIES, in *astron.*, great circles of the sphere perpendicular to the plane of another great circle, and passing through its poles, which latter is regarded as the primary. SECONDARY COLOR, any two of the primary colors united in equal proportions. SECONDARY FEVER, a fever arising after the crisis of another disease. SECONDARY QUALITIES, the qualities of bodies, such as color, taste, and smell, which may be separated from them. SECONDARY ROCKS OR STRATA, in *geol.* (see SECONDARY). SECONDARY PLANET, a planet revolving about a primary planet, as the moon around the earth. SECONDARY TINTS, those of a subdued kind, such as grays.—SYN. of 'secondary, a.': second-rate; subordinate; inferior; delegated; deputed.

SEC'OND [see SCRUPLE]: 60th part of a minute, whether of time or of angular magnitude: see MINUTE. In old treatises we find seconds distinguished as *minutæ secundæ*, from minutes or *minutæ primæ*. The 60th part of a second was called a third; but instead of this and succeeding subdivisions, decimal fractions of seconds are now used.

## SECONDARY—SECOND SIGHT.

SEC'ONDARY, in Geology: designation synonymous with Mesozoic, denoting that large section of the fossiliferous strata which includes the Triassic, Oolitic, and Cretaceous rocks. The strata grouped under this title are separated from the inferior and superior deposits more by their organic contents than their petrological structure, and this separation is more evident between them and the older rocks, than between them and the newer; yet recent discoveries have shown that the St. Cassian Beds form a connecting link between the Permian and Triassic epochs: they contain a series of fossils partly Paleozoic and partly Mesozoic in their facies.

The appearance of the great types of all subsequent organisms in the Secondary rocks has suggested the grouping of the fossiliferous strata in respect of their fossils into only two great divisions—viz., the Paleozoic and the Neozoic—this last term including the Secondary and Tertiary periods. The common classification, however, is Paleozoic, Mesozoic, Tertiary, and Quaternary.

SECOND SIGHT: superstition or belief formerly common in the Scottish Highlands and Isles, where it is known by the Gaelic appellation *Taibhsearachd*, signifying a spectral or shadowy appearance. Certain persons, called scers or wizards, were supposed to possess a supernatural gift, by which they involuntarily foresaw future events, and perceived distant objects as if they were present:

As the sun,  
Ere it is risen, sometimes paints its image  
In the atmosphere, so often do the spirits  
Of great events stride on before the events,  
And in to-day already walks to-morrow.

WALLENSTEIN.

This is to depict the lofty and poetical view of the subject, as illustrated in classic fable and early history. The Highland seer, however, was conversant chiefly with the scenes and occurrences of ordinary life. ‘A man on a journey far from home falls from a horse; another, who is perhaps at work about the house, sees him bleeding on the ground, commonly with a landscape of the place where the accident befalls him. Another seer, driving home his cattle, or wandering in idleness, or musing in the sunshine, is suddenly surprised by the appearance of a bridal ceremony or funeral procession, and counts the mourners or attendants, of whom, if he knows them, he relates the names, if he knows them not he can describe the dresses. Things distant are seen at the instant when they happen’ (Dr. Johnson’s *Journey to the Hebrides*). ‘The vision makes such a lively impression upon the seers,’ says Martin, in his account of the Western Islands, 1703, ‘that they neither see nor think of anything else except the vision, as long as it continues; the eyelids of the seer are erected, and the eyes continue staring until the object vanish.’ The power of the seer was involuntary and painful—it was no source of gain. There have been attempts to reduce to a system these symbolical appearances; but such attempts seem in vain: the evidence is vague and confused, and the incidents

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are often most trivial. The revelations, indeed, were commonly to poor illiterate men, predisposed from the nature of their country—wild, dreary, and remote—and from their half-idle, solitary life, to melancholy and superstition. We find the S. S. coloring portions of the story of Wallace and Bruce, and associated with the tragic fate of James I. of Scotland. A Scottish seer is said to have foretold the unhappy career of Charles I., and another the violent death of Villiers, Duke of Buckingham. In 1652 a Scottish lawyer, Sir George Mackenzie, afterward Lord Tarbat, made inquiries concerning this supposed supernatural faculty, and addressed a minute account of its manifestations to the celebrated Robert Boyle; which, with other relations on the same subject, is published in the correspondence of Samuel Pepys. Next came Martin's copious description; then a Highland minister, the Rev. John Fraser of Tyree, collected *Authentic Instances* (1707); and 1763 appeared the ambitious treatise of *Theophilus Insulanus*, or Macleod of Hamir, which contained the narratives previously set forth, with the addition of nearly a hundred others, gathered by himself from various sources, also numerous letters from Highland ministers. This work, which was exhaustive in scope, was made ridiculous by its display of vanity and credulity. The publication of Dr. Johnson's memorable *Journey to the Hebrides* (1775) revived the subject. The sage was naturally superstitious, and was eager to believe in the possibility of messages from the other world. The evidence, however, was not complete; and with that love of truth which was one of his stout virtues, he confessed that he never could 'advance his curiosity to conviction, but came away at last only willing to believe.' The modern thought certainly tends fully to agree with his result of disbelief; but will have no use for that part of his argument against S. S. drawn from its necessarily being a special exercise of divine power. If it were proved real to-day, it would be readily referred to some natural law whose operation surprises only because it has hitherto been little known. The *special* exercises of divine power are, in the Christian thought of the present day, reserved for a different order of effects. Since education has penetrated into the Highlands and Isles, and intercourse with other parts of the kingdom has been facilitated, the belief in S. S., as in astrology and witchcraft, has almost disappeared. It never had the cruel and revolting features of witchcraft—formerly prevalent in the Lowlands; and it still seems picturesque enough to serve the purposes of poetry and romance.

**SECRET**, a. *sē'krēt* [F. *secret*, secret—from L. *secrētus*, separate, apart—from *secerno*, I sever or separate—from *se*, aside; *cerno*, I distinguish: It. *secreto*]: concealed; hidden; kept from the view or knowledge of all except those concerned; not revealed; secluded; private; not apparent; occult; obscure; known to God alone: N. something studiously concealed; something undiscovered or unknown. **SECRETLY**, ad. -*lī*, not publicly; not openly; with intention not to be known; privately. **SECRECY**, n. *sē'krē-sī*, state

## SECRET.

of being secret; solitude; retirement; privacy; concealment from all persons except those concerned; close silence. SE'CRETNESS, n. state of being hidden; concealment. IN SECRET, privately; in a state or place not seen.—SYN. of 'secret, a.': hidden; unrevealed; concealed; retired; private; unseen; faithful; occult; secluded; unknown; obscure; recondite; covert; latent; clandestine; privy.

SE CRET [Lat. *secreta*, i.e., *oratio*, the secret prayer]: one of the prayers of the Mass (q.v.) in the Rom. Cath. Church; of the same general form with the 'Collect,' but recited by the priest in so low a voice as not to be heard by the people. It follows immediately after the oblation of the eucharistic bread and wine. This use of silent prayer in the public service is one of the subjects of controversy between Rom. Catholics and Protestants.

SECRET, DISCIPLINE OF THE (Lat. *Arcani Disciplina*): a discipline of the early church, founded on the words of Christ, 'Give not that which is holy to dogs,' Matt. vii. 6 (comp. Heb. v. 12-14; I Cor. iii. 1); in virtue of which Christians fully initiated in the doctrine and practice of the church withheld from pagans and from catechumens in the preparatory stage the knowledge of certain doctrines, and the liberty of presence at certain rites connected with the most solemn mysteries of the Christian religion. This practice originated in view of the danger of persecution arising from the obloquy drawn upon the church from the false and monstrous conceptions of its doctrines circulated among pagans; also because of some supposed danger of shocking too suddenly the half-formed convictions of catechumens by too broad an utterance of the more difficult Christian doctrines. Against the calumnious misconceptions of the pagans, the earliest of the so-called 'Apologies' are addressed; and it seems certain that at the time at which Justin wrote his first *Apology*, middle of the 2d c., no objection existed against speaking openly of the mystery of the Eucharist (see *Justini Apol.*, I. 66). Very soon after this, however, this 'Secret' is clearly traceable; and it seems to have contributed to the development of mysticism in connection with the sacramental doctrine. The Discipline of the Secret appears in several forms—(1) Both unbelievers and catechumens were removed from the church at the commencement of that portion of the liturgy which specially relates to the celebration of the Eucharist—the so-called *Missa Fidelium*: see MASS. (2) The lectures addressed by the presiding teacher to the great body of the catechumens in general were confined to the general doctrines of Christianity. The more mysterious doctrines, those which regarded the sacraments of Baptism and the Eucharist, called 'Mystagogic,' were communicated only at the close, and to those only who had undergone the preliminary probation. (3) The Eucharist, if referred to at all in the presence of the uninitiated, was spoken of in words so conceived as to conceal its nature. Many curious examples of this concealment might be cited. Origen, alluding to the Eucharist (Hom. 8, in *Exod.* 4), says merely: 'The initiated know what I mean.' When Chrysostom

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was writing to Pope Innocent I. an account of a tumult in the church at Constantinople; in which the sacred cup was overset, and the consecrated elements spilled, he says, without reserve, 'The blood of Christ was spilled.' But Palladius, the deacon, in his Life of Chrysostom, which was designed for the pagans as well as for the Christians, takes the precaution to use the words, 'The symbols which are known to the faithful.' Still more curiously, Epiphanius, in citing the well-known words of the eucharistic formula, 'This is my body,' suppresses the word under which the mysterious idea is contained, and writes, 'This is my *that thing*': *Touto mou esti tote*. A very curious example of this amphibological language regarding the Eucharist is in a Greek inscription discovered some years since at Autun, France (see *Edin. Rev.*, 1864, July).

There is some uncertainty as to the period during which this discipline lasted in the church. It commenced probably in the time of Justin, as his contemporary, the heretic Marcion, is known to have protested against it as an innovation (Neander's *Kirchengeschichte*, I. 540). It is thought possible by some that Justin's mode of writing was exceptional, and that the Secret may have been in use before his time. On the other hand, it is certain that it outlived the period out of whose conditions it arose, and was maintained long after the ages of persecution. The traces of its observance had not disappeared in the 6th c.—See MYSTAGOGUE. Schelstrate, *Diss. de Discip. Arcani*, 1685; Scholliner, *Diss. de Discip. Arcani*, 1756; and on the Prot. side, Tenzel, *De Discip. Arcani* (in reply to Schelstrate); Rothe, *De Disc. Arcani*, Heidelberg 1831. See also Smith and Cheetham's *Dict. of Christian Antiq.* ('Disciplina Arcani').

**SECRETARIES OF EXECUTIVE DEPARTMENTS**, in the United States Government: head officers in the several departments: they are the constitutional advisers of the president; are appointed by the president (with the consent of the senate), and are removable at the will of the president. Collectively they are known as the 'cabinet' of the president. These depts. in 1903 were 9 in number, viz., State, Treasury, War, Navy, Justice, Interior, Post-office, Agriculture and Com'ce and Labor. The SECRETARY OF STATE is charged with the conduct of the foreign affairs of the govt.; he carries on the correspondence of the govt. with the ministers of foreign powers, and instructs the U. S. ministers and other representatives in foreign countries. He is the keeper of the great seal of the United States, is custodian of the archives, and publishes the laws of congress. The chief officers of the dept. of state, under the sec., are the asst. sec., the 2d asst. sec., and the 3d asst. sec.; the chief clerk; the heads of the bureau of indexes and archives, of the diplomatic bureau, consular bureau, bureau of accounts, of rolls and library, of appointments, and also of passports. The office of secretary of state is traditionally esteemed the post of honor in the cabinet, and sometimes he is spoken of as 'premier,' but improperly, for neither by constitu-

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tion, nor law, nor custom has he any control whatever in any dept. of the govt. save his own. The president usually chooses for sec. of state one of the foremost leaders of his party, or even one of his competitors for the nomination to the presidency: thus, e.g., Lincoln chose his competitor Seward. The 3d, 4th, 5th, and 6th presidents were at first promoted to the state dept. as great political leaders, and stepped thence direct to the presidency.—THE SECRETARY OF THE TREASURY is minister of finance; he prepares plans for improving the revenue and strengthening the public credit; superintends the collecting of the revenue; grants warrants for payment of demands on the treasury, and is charged with many other functions, as appears from a partial list of the asst. sec. and other officers subordinate to him: 3 asst. secretaries; chief clerk; 1st and 2d comptroller; chief of customs divis'n; 1st, 2d, 3d, 4th, 5th, and 6th auditor; treasurer of the U. S.; assistant treasurer; register of the treasurer; comptroller of the currency; director of the mint; solicitor of the treasury; com. of internal revenue; 2 deputy com. of internal revenue; supervising inspector-gen. of steam vessels; supervising surgeon-gen. of marine hospital service; general superintendent of life-saving serv.; chief of secret serv.; bureau of engraving and printing.—The SECRETARY OF WAR (who is always a civilian, as is also the sec. of the navy) performs such duties concerning the milit. service as may be imposed on him by the president; he has supervision of the purchase of army supplies, transportation, etc., and of expenditures under the appropriations made by congress for the support of the army. There is in his office an asst. sec. and a chief clerk. The milit. bureaus of the war dept. are those of the adjt.gen.; inspector-gen.; quartermaster-gen.; surgeon-gen.; paymaster-gen.; chief of engineers; commissary-gen.; judge-advocate-gen.—The SECRETARY OF THE NAVY discharges toward the navy such duties as are assigned to him by the president; he is charged with general superintendence of construction, manning, equipment, and employment of war vessels. He has an asst. sec. This dept. includes the following bureaus, whose chiefs are officers of the navy: bureau of yards and docks; of equipment and recruiting; of ordnance; of construction and repair; of steam-engineering; of medicine and surgery; of supplies and accounts; office of judge-advocate-gen.; inspector of pay corps.—The ATTORNEY-GENERAL (head of the dept. of justice) is the chief public prosecutor and standing counsel of the govt.; he is the official superior of the U. S. dist. attorneys and of the U. S. marshals throughout the states; and he is the president's legal adviser in all questions of constitution and law that arise in administering the govt. His principal assistants are: chief clerk; law clerk; solicitor-gen.; 1 asst. attorneys-gen. and the solicitor, state dept.—The SECRETARY OF THE INTERIOR has numerous officers subordinate to him; viz.: 1st asst. sec.; asst. sec.; chief clerk; commissioners of patents, pensions, the gen. land office, Indian affairs, educa-

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tion, and railroads respectively; director of the geological survey; 2 deputy com. pensions.—The POSTMASTER-GENERAL has duties defined by his title. Under him are the following chief officers: 1st, 2d, 3d asst. postmasters-gen.; head of office of foreign mails; supt. of money-order system; supt. of the dead-letter office.—The SECRETARY OF AGRICULTURE has supervision of all public business relating to agriculture. Subordinate to him are the asst. sec.; chief of the Weather Bureau; statistician; entomologist; botanist; chemist; microscopist; etc.—The SECRETARY OF COMMERCE and LABOR has supervision of the following bureaus: corporations, labor, immigration, statistics, navigation, foreign commerce, standards, census, the light house board, light house establishment, steamboat inspection service, coast and gradetic survey, commis.-gen. of immigration, and the immigration service at large, commissioners of immigration, shipping commissioner, and the fish commission.

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